



Independent Pricing and Regulatory Tribunal

Hunter Water Corporation Draft Reporting Manual

Water — Reporting Manual
July 2012

© Independent Pricing and Regulatory Tribunal of New South Wales 2012

This work is copyright. The *Copyright Act 1968* permits fair dealing for study, research, news reporting, criticism and review. Selected passages, tables or diagrams may be reproduced for such purposes provided acknowledgement of the source is included.

Inquiries regarding this document should be directed to a staff member:

Gary Drysdale (02) 9290 8477

Narelle Berry (02) 9113 7722

Independent Pricing and Regulatory Tribunal of New South Wales

PO Box Q290, QVB Post Office NSW 1230

Level 8, 1 Market Street, Sydney NSW 2000

T (02) 9290 8400 F (02) 9290 2061

www.ipart.nsw.gov.au

Contents

1	Introduction	1
1.1	Purpose	1
1.2	Definitions and interpretation	1
1.3	Structure of this Reporting Manual	2
1.4	Changing this Reporting Manual	2
1.5	When should the information be reported?	2
1.6	How should the information be reported?	3
2	Water quality	5
2.1	Periodic reporting	5
2.2	Annual reporting	7
2.3	Intermittent reporting	8
2.4	Publicly available documents	9
3	Water quantity	10
3.1	Periodic reporting	10
3.2	Annual reporting	10
3.3	Intermittent reporting	11
3.4	Publicly available documents	12
4	Assets	13
4.1	Periodic reporting	13
4.2	Annual reporting	13
4.3	Intermittent reporting	14
4.4	Publicly available documents	14
5	Customers and Consumers	15
5.1	Periodic reporting	15
5.2	Annual reporting	15
5.3	Intermittent reporting	16
5.4	Publicly available documents	16
6	Environment	17
6.1	Periodic reporting	17
6.2	Annual reporting	17
6.3	Intermittent reporting	18
6.4	Publicly available documents	19

7	Quality management	20
7.1	Periodic reporting	20
7.2	Annual reporting	20
7.3	Intermittent reporting	21
7.4	Publicly available documents	21
8	Performance monitoring	22
8.1	Periodic reporting	22
8.2	Annual reporting	22
8.3	Intermittent reporting	23
8.4	Publicly available documents	23
8.5	Statement of compliance	23
9	Other reporting	24
9.1	Audit recommendations	24
9.2	Significant changes	24
9.3	Statement of compliance	25
	Appendices	27
A	Timeline for reporting	29
B	IPART performance indicator - water quality	30
C	IPART performance indicators - infrastructure	31
D	IPART performance indicators - environment	35
E	IPART performance indicators - customers	38
F	Drink Water and Recycled Water quality management system report template	42

1 Introduction

The Independent Pricing and Regulatory Tribunal (**IPART**) is responsible for monitoring and reporting on the compliance of Hunter Water Corporation (**Hunter Water**) with its Licence.

1.1 Purpose

This Reporting Manual outlines all of Hunter Water's reporting requirements under its Licence. This Reporting Manual identifies:

- ▼ when Hunter Water should report;
- ▼ what information Hunter Water must report; and
- ▼ how Hunter Water should report.

It is a condition of Hunter Water's Licence that it must comply with the reporting obligations set out in this Reporting Manual.¹

This Reporting Manual does not reproduce Hunter Water's Licence obligations in full. It is still necessary for Hunter Water to refer to the Licence and to any law, statutory instrument or document referred to in the Licence obligation (eg, guidelines, etc).

1.2 Definitions and interpretation

Terms that are defined in the Licence have the same meaning in this Reporting Manual, unless the terms are separately defined in this Reporting Manual.

The interpretation provisions in the Licence apply to this Reporting Manual, with all references to the Licence in those provisions taken to be references to this Reporting Manual.

[Note: As at the Commencement Date, the interpretation provisions are contained in clause 12.2 of the Licence.]

¹ Clause 8.2.1 of the Licence.

1.3 Structure of this Reporting Manual

This Reporting Manual is structured as follows:

- ▼ Section 1 details how and when Hunter Water is to report; and
- ▼ Sections 2 to 9 outline the specific reporting requirements for each section of the Licence according to the reporting schedule in Table 1.1.

1.4 Changing this Reporting Manual

We may change this Reporting Manual at any time. In particular, we may change this Reporting Manual to:

- ▼ reflect changes in the applicable law, including the Act;
- ▼ include additional reporting obligations where appropriate;
- ▼ include references to new Licence obligations;
- ▼ delete references to Licence obligations that are no longer relevant;
- ▼ amend the information that Hunter Water must provide to IPART and to NSW Health (as the case may be); and
- ▼ improve the reporting process.

Before we change this Reporting Manual significantly, we will consult with Hunter Water and other interested stakeholders. We will then notify Hunter Water and stakeholders of the changes to this Reporting Manual and the start date for any new reporting arrangements. In determining the start date of significant changes, we will make sure there is enough time for Hunter Water to implement new arrangements.

1.5 When should the information be reported?

Hunter Water's reporting schedule is summarised in Table 1.1. We have grouped reporting requirements into:

- ▼ periodic reporting (ie, monthly, quarterly, etc);
- ▼ annual reporting; and
- ▼ intermittent reporting.

Appendix A to this Reporting Manual provides a complete timeline for Hunter Water's reporting requirements under its Licence.

1.6 How should the information be reported?

1.6.1 Reporting to IPART

Hunter Water should report the required information in a clear and concise report. Where this Reporting Manual requires information on more than one area (eg, water quality and environment) at the same time, Hunter Water is encouraged to provide the information in a single report. However, Hunter Water may choose to report the information in separate reports.

The reports must be approved by Hunter Water's Managing Director.

Hunter Water must lodge each report electronically with a hard copy sent by mail. When lodging a report, Hunter Water must also provide the name and contact details (phone, email) of the primary contact with whom IPART can liaise when assessing compliance, and an alternative contact for those times when the primary contact is unavailable.

Electronic reports must be emailed to: compliance@ipart.nsw.gov.au.

Hard copy reports must be sent to:

The Chief Executive Officer
Independent Pricing and Regulatory Tribunal of NSW
PO Box Q290
QVB Post Office NSW 1230

1.6.2 Reporting to NSW Health

Hunter Water must provide reports to NSW Health as outlined in this Reporting Manual.

Hunter Water must lodge each report electronically with a hard copy sent by mail. When lodging a report, Hunter Water must also provide the name and contact details (phone, email) of the primary contact with whom NSW Health can liaise when assessing compliance, and an alternative contact for those times when the primary contact is unavailable.

Electronic reports must be emailed to: waterqual@doh.health.nsw.gov.au, or to the last email address notified by NSW Health to Hunter Water.

Hard copy reports must be sent to:

Environmental Health Manager
Hunter New England Population Health
Locked Bag 10
WALLSEND NSW 2287

or to the last address notified by NSW Health.

Table 1.1 Summary of Hunter Water's reporting requirements

Reporting schedule	Water quality	Water quantity	Assets	Customers and Consumers	Environment	Quality management	Performance monitoring
	Section 2 of Reporting Manual	Section 3 of Reporting Manual	Section 4 of Reporting Manual	Section 5 of Reporting Manual	Section 6 of Reporting Manual	Section 7 of Reporting Manual	Section 8 of Reporting Manual
Periodic	Public report – Monthly	None	State of assets – 1 September 2014 and 1 September 2016	None	None	None	None
	NSW Health report – Monthly & Quarterly						
Annual	Compliance and performance report – 1 September ^{a,b}						
	Report on audit recommendations and significant changes to systems and/or procedures – 31 March						
Intermittent	Incident notification – Immediately	Proposed Economic Level of Leakage Methodology 31 July 2013 ^c	None	None	None	None	None
		Economic Level of Leakage – 31 January 2014					

^a The compliance and performance reporting requirements in section 6 of this Reporting Manual change following certification of the Environmental Management System.

^b Reporting under section **Error! Reference source not found.** of this Reporting Manual will commence from the certification of the Quality Management System.

^c The proposed methodology for determining the Economic Level of Leakage is due at least 6 months before Hunter Water commences the review (ie, no later than 31 July 2013).

2 Water quality

This section sets out Hunter Water's reporting obligations for clause 2 of the Licence.

2.1 Periodic reporting

2.1.1 Public reporting

Hunter Water must prepare a report that summarises the results of routine monitoring of Drinking Water quality, which is undertaken each month under the monitoring program developed as part of the Drinking Water Quality Management System (**Monthly Water Quality Monitoring Report**). This report is to contain the results of routine monitoring which the monitoring program requires to be reported to Hunter Water's Customers.

Hunter Water must report publicly on the Monthly Water Quality Monitoring Report in accordance with section 2.4 of this Reporting Manual by the second week of the following month.

[Note: Under clauses 2.1.1 and 2.1.2 of the Licence, Hunter Water must maintain and implement a Drinking Water Quality Management System, ie, a Management System that is consistent with the Australian Drinking Water Guidelines. The Australian Drinking Water Guidelines provide a framework for good management of Drinking Water supply. One of the central aspects of the framework is the use of monitoring to confirm the effectiveness of the preventive measures and barriers to contamination, and to enhance Hunter Water's understanding of the performance of the system that implements the Australian Drinking Water Guidelines.]

To comply with the Licence, the Drinking Water Quality Management System must include a monitoring program. This section 2.1.1 of the Reporting Manual requires Hunter Water to report on aspects of its monitoring of Drinking Water quality to Customers.]

2.1.2 NSW Health reporting

Monthly

Hunter Water must submit a report on its fluoride monitoring to NSW Health for each month, which contains the information required by the Code of Practice for Fluoridation of Public Water Supplies. Hunter Water must submit the report within the first week of the following month.

Quarterly

Hunter Water must submit a report on its monitoring of the quality of Drinking Water and Recycled Water on an exception² basis to NSW Health for each quarter starting from 1 July 2012. Hunter Water must submit the report within 6 weeks of the end of the quarter.

Each report must include the following information for the quarter:

- ▼ the details of any monitoring test result (**Exception**) that does not comply with:
 - the relevant guideline value for each Drinking Water quality characteristic (each as specified in the monitoring program developed as part of the Drinking Water Quality Management System); or
 - the relevant guideline value for each Recycled Water quality characteristic (each as specified in monitoring program developed as part of the Recycled Water Management System).

The details must include test results and the date or period of non-compliance with the relevant guideline values;

- ▼ an appraisal of the Exception, including a discussion of the extent and nature of the Exception and an analysis of the risks posed by the Exception; and
- ▼ an explanation of the causes of the Exception and any action taken to rectify it and prevent it from re-occurring.

If there are no Exceptions in the quarter, the report should state that this is the case.

[Note: As explained in the Note to section 2.1.1 above, Hunter Water must maintain and implement a Drinking Water Quality Management System in accordance with the Licence. Hunter Water must also maintain and implement a Recycled Water Quality Management System, i.e. a Management System that is consistent with the Australian Guidelines for Water Recycling (Licence, clauses 2.2.1 and 2.2.2). The Australian Guidelines for Water Recycling seek to provide a framework for good management of Recycled Water supply. To comply with the Licence, the Drinking Water Quality Management System and Recycled Water Quality Management System must each include a monitoring program. This section

² An exception is a test result that does not meet the guideline value for that water characteristic. A non-compliance occurs where the value for a water characteristic observed in testing does not satisfy the long term (12-month or longer) performance requirements set out in the Australian Drinking Water Guidelines or as determined by NSW Health.

2.1.2 requires Hunter Water to report on aspects of its monitoring of the quality of Drinking Water and Recycled Water under such monitoring programs.

Hunter Water must also report on its fluoride monitoring as its monitoring programs must comply with monitoring requirements in the Code of Practice for Fluoridation of Public Water Supplies. NSW Health has specified this Code as an addition to the Australian Drinking Water Guidelines for the purposes of clause 2.1.1(b) of the Licence.]

2.2 Annual reporting

2.2.1 Compliance and performance reporting

Hunter Water must submit a compliance and performance report on its management of the quality of Drinking Water and Recycled Water to IPART for each financial year. The report must use the template in Appendix C of this Reporting Manual. Hunter Water must submit the report by **1 September** after the end of the financial year, or at a later date agreed to by IPART.

The report must include:

- ▼ the Drinking Water and Recycled Water quality management activities and programs completed by Hunter Water in the financial year to meet its water quality objectives, including the results and outcomes from those activities and programs;
- ▼ the Drinking Water and Recycled Water quality management activities and programs proposed to be undertaken by Hunter Water to meet its water quality objectives in the future, including the expected outcomes, scope and timetable for completion;
- ▼ an assessment of the performance of critical control points (as identified by the Drinking Water Quality Management System and the Recycled Water Quality Management System) over the long-term in accordance with Chapter 10 of the Australian Drinking Water Guidelines or Element 11 of the Australian Guidelines for Water Recycling (as the case may be);
- ▼ any proposed significant changes to the Drinking Water Quality Management System and/or the Recycled Water Quality Management System; and
- ▼ any failures in the Drinking Water Quality Management System and/or the Recycled Water Quality Management System, and the action taken to resolve them.

[Note: As explained in the Notes to sections 2.1.1 and 2.1.2 above, Hunter Water must maintain and implement a Drinking Water Quality Management System and Recycled Water Quality Management System in accordance with the Licence. This section 2.2 requires Hunter Water to report on how it complies with this Licence condition.]

The water quality objectives referred to in this section 2.2.1 are objectives that Hunter Water would need to identify for the Drinking Water Quality Management System and the Recycled Water Quality Management System. Hunter Water’s water quality objectives may be either:

- ▼ *the broad objectives of the Drinking Water Quality Management System or Recycled Water Quality Management System (e.g. to ensure consistent management of water quality). These objectives may cover all 12 elements of the Drinking Water Quality Framework or Recycled Water Quality Framework, such as monitoring, operation maintenance, training, community consultation and research programs; or*
- ▼ *the target water quality criteria (i.e. operational water quality objectives) for each operational water quality characteristic included in the monitoring program developed as part of the Drinking Water Quality Management System or Recycled Water Quality Management System (e.g. E.coli numbers in feeder streams or raw water).*

The Drinking Water and Recycled Water Quality Management System activities and programs referred to in this section 2.2.1 are those that Hunter Water would identify in its risk assessments as actions or programs that are required to manage or maintain a risk below a tolerable level. Undertaking a risk assessment is part of the Drinking Water Quality Framework and Recycled Water Quality Framework, with which the Drinking Water Quality Management System and the Recycled Water Quality Management System (respectively) must be consistent.]

2.3 Intermittent reporting

2.3.1 Incident and emergency reporting – Drinking Water and Recycled Water

Hunter Water must immediately report to NSW Health any incident in the delivery of its Services which may adversely affect public health.

Hunter Water must report the incident in accordance with the reporting protocols developed in the Drinking Water Quality Management System or the Recycled Water Quality Management System. “Incident” is as defined under the Drinking Water Quality Management System or the Recycled Water Quality Management System.

[Note: To comply with the Licence, the Drinking Water Quality Management System and the Recycled Water Management System should define “incidents” and include protocols for external communications and reporting of incidents. This section 2.3 requires Hunter Water to report these incidents in accordance with these protocols.]

2.4 Publicly available documents

Hunter Water must make:

- ▼ the Monthly Water Quality Monitoring Report; and
- ▼ the compliance and performance report on Drinking Water and Recycled Water quality management (referred to in section 2.2.1 of this Reporting Manual),

available free of charge:

- ▼ on its website for downloading by any person; and

at its offices for access or collection by any member of the public.

3 | Water quantity

This section sets out Hunter Water's reporting obligations for clause 3 of the Licence.

3.1 Periodic reporting

There is no periodic reporting requirement under this section **Error! Reference source not found.** of the Reporting Manual.

3.2 Annual reporting

3.2.1 Compliance and performance reporting

Hunter Water must submit a compliance and performance report on its water quantity management to IPART for each financial year. Hunter Water must submit the report by **1 September** following the end of the financial year, or at a later date agreed to by IPART.

The report must include:

- ▼ Hunter Water's compliance with the Water Conservation Target;
- ▼ an update on the projects that Hunter Water has undertaken in the financial year to achieve the Water Conservation Target, including:
 - a description of each project; and
 - an estimate of the amount of water that was saved as a result of each project; and
- ▼ a list of projects that Hunter Water proposes to undertake to achieve the Water Conservation Target, including:
 - a description of each project; and
 - an estimate of the amount of water that will be saved as a result of each project;
- ▼ an estimate of the maximum reliable quantity of water that Hunter Water can derive from one year to the next, from its existing water storages, taking into account and quantifying all relevant factors including but not limited to:
 - the capacity of the water storages, and the rates of depletion and recovery of water in the water storages at current rates of consumption;

- climatic data, trends and projections;
- supply to and/or from areas outside the Area of Operations; and
- constraints on extraction of water to the water storages, including those imposed by Licences and approvals under the *Water Act 1912* (NSW), the *Water Management Act 2000* (NSW) and conditions in the relevant water sharing plans.

[Note: Under clause 3.1 of the Licence, Hunter Water must report on its compliance with the Water Conservation Target. This section 3.2.1 requires Hunter Water to report on its compliance with the Water Conservation Target as well as the actions it has taken or proposes to take to maintain such compliance.]

As noted in Schedule A to the Licence, the Licence does not currently include any conditions on maintaining the security of supply of Drinking Water in Hunter Water's Area of Operations because this will be achieved through the Lower Hunter Water Plan, which is still being developed. This section 3.2.1 requires Hunter Water to report on the estimate of the maximum reliable quantity of water in the interim, as an indicator of the security of water supply until the Lower Hunter Water Plan has been developed.

Reporting of the maximum reliable quantity of water should be based on the yield definition in Hunter Water's H₂50 Plan (the integrated water resource plan published in 2008) until a new definition of yield is developed under the Lower Hunter Water Plan.]

3.3 Intermittent reporting

3.3.1 Economic Level of Leakage report

Hunter Water must submit a report to IPART on the Economic Level of Leakage from its Drinking Water Network by **31 January 2014**.

Hunter Water must submit to IPART, for its approval, the proposed methodology for determining the Economic Level of Leakage at least 6 months before Hunter Water commences the review to determine the Economic Level of Leakage³ (ie, no later than 31 July 2013).

[Note: Under clause 3.2 of the Licence, Hunter Water must provide the proposed methodology for its review of the Economic Level of Leakage to IPART for approval and report on the review in accordance with this Reporting Manual.]

³ Licence, clause 3.2.1(a).

3.4 Publicly available documents

Hunter Water must make the compliance and performance report on its water quantity management (referred to in section 3.2.1 of this Reporting Manual) available free of charge:

- ▼ on its website for downloading by any person; and
- ▼ at its offices for access or collection by any member of the public.

4 Assets

This section sets out Hunter Water's reporting obligations for clause 4 of the Licence.

4.1 Periodic reporting

4.1.1 State of the assets report

Hunter Water must report to IPART on the state of each group of assets it manages by **1 September 2014** and **1 September 2016**. The report must include the following matters as at 1 July 2014 and 1 July 2016 (as the case may be):

- ▼ a description of each group of assets;
- ▼ Hunter Water's assessment of the expected capability of the assets to deliver the Services and to meet the existing obligations consistent with the Licence, the Customer Contract, and all applicable laws with which Hunter Water must comply;
- ▼ Hunter Water's assessment of the major issues or constraints on current and future performance of the assets;
- ▼ the strategies and expected costs of future investment in assets; and
- ▼ such other matters reasonably required by IPART.

[Note: Under clauses 4.1.1 and 4.1.2 of the Licence, Hunter Water must develop and implement an Asset Management System. This section 4.1.1 requires Hunter Water to provide a snap shot of these aspects of the Asset Management System (as implemented) at a point in time.]

4.2 Annual reporting

4.2.1 Compliance and performance reporting

Hunter Water must submit a compliance and performance report on its Asset Management System to IPART for each financial year. Hunter Water must submit the report by **1 September** following the end of the financial year, or at a later date agreed to by IPART.

The report must include:

- ▼ the asset management activities and programs completed by Hunter Water in the financial year to meet the objectives of the Asset Management System;
- ▼ the results and outcomes from those activities and programs;
- ▼ the asset management activities and programs proposed to be undertaken by Hunter Water to meet objectives of the Asset Management System in the future, including the timetable for completion;
- ▼ any proposed significant changes to the Asset Management System; and
- ▼ any Asset Management System failures and the action taken to resolve them.

[Note: As noted above, Hunter Water must maintain and implement an Asset Management System, i.e. a Management System that is consistent with the standard specified in the licence (Licence, clauses 4.1.1 and 4.1.2). This section 4.2.1 requires Hunter Water to report on how it complies with this Licence condition. The objectives referred to in this section 4.2.1 are those that Hunter Water would need to identify for the Asset Management System. The asset management activities and programs referred to in this section 4.2.1 are those that Hunter Water would need to undertake to achieve the objectives of the Asset Management System.]

4.2.2 Water Pressure, Water Continuity and Wastewater Overflow Standards

Hunter Water's reporting obligations on Water Pressure, Water Continuity and Wastewater Overflow Standards are set out in section 8.2.1 of this Reporting Manual.

4.3 Intermittent reporting

There is no intermittent reporting requirement under this section **Error! Reference source not found.** of the Reporting Manual.

4.4 Publicly available documents

Hunter Water must make the compliance and performance report on its Asset Management System (referred to in section 4.2.1 of this Reporting Manual) available free of charge:

- ▼ on its website for downloading by any person; and

at its offices for access or collection by any member of the public.

5 Customers and Consumers

This section sets out Hunter Water's reporting obligations for clause 5 of the Licence.

5.1 Periodic reporting

There is no periodic reporting requirement under this section **Error! Reference source not found.** of the Reporting Manual.

5.2 Annual reporting

5.2.1 Compliance and performance reporting

Hunter Water must submit a compliance and performance report on its Customer and Consumer management to IPART for each financial year. Hunter Water must submit the report by **1 September** after the end of the financial year, or at a later date agreed to by IPART.

The report must include:

- ▼ the activities of the Consultative Forum in the financial year including:
 - the activities and achievements of the Consultative Forum; and
 - compliance of the Consultative Forum with the Consultative Forum Charter;
- ▼ any systemic problems arising from Complaints and the action taken to resolve them;
- ▼ any proposed significant changes to:
 - the Customer Contract;
 - the Procedure for Payment Difficulties and Actions for Non-Payment;
 - the Consultative Forum Charter;
 - the Internal Complaints Handling Procedure; and
 - the external dispute resolution scheme referred to in clause 5.7 of the Licence.

[Note: Under the Licence, Hunter Water must:

- ▼ *maintain and implement a Procedure for Payment Difficulties and Actions for Non-payment (Licence, clause 5.4);*

- ▼ *consult with its Customers and Consumers through a Consultative Forum and maintain a Consultative Forum Charter (Licence, clause 5.5); and*
- ▼ *maintain and implement an Internal Complaints Handling Procedure (Licence, clause 5.6) and be a member of the external dispute resolution scheme (Licence, clause 5.7).*

This section 5.2.1 requires Hunter Water to report on how it complies with these Licence conditions.]

5.3 Intermittent reporting

There is no intermittent reporting requirement under this section **Error! Reference source not found.** of the Reporting Manual.

5.4 Publicly available documents

Hunter Water must make the:

- ▼ Consultative Forum Charter (as required by clause 5.5.6 of the Licence);
- ▼ minutes of Consultative Forum meetings (as required by clause 5.5.6 of the Licence);
- ▼ Customer Contract (including any variations to it, as required by clause 5.1.1 of the Licence);
- ▼ pamphlet that explains the Customer Contract (as required by clause 5.2.1 of the Licence);
- ▼ pamphlet that explains the operation of the dispute resolution service (as required by clause 5.7.2 of the Licence);
- ▼ Procedure for Payment Difficulties and Actions for Non-payment (as required by clause 5.4.4 of the Licence); and
- ▼ compliance and performance report on its Customer and Consumer management (referred to in section 5.2.1 of this Reporting Manual),

available free of charge:

- ▼ on its website for downloading by any person; and

at its offices for access or collection by any member of the public.

6 Environment

This section sets out Hunter Water's reporting obligations for clause 6 of the Licence.

Hunter Water is required to develop and certify an Environmental Management System by 30 June 2017.⁴ Before the Environmental Management System is certified, Hunter Water must report in accordance with section 6.2.1 of this Reporting Manual. Following certification of the Environmental Management System, Hunter Water must report in accordance with section 6.2.2 of this Reporting Manual.

6.1 Periodic reporting

There is no periodic reporting requirement under this section **Error! Reference source not found.** of the Reporting Manual.

6.2 Annual reporting

6.2.1 Compliance and performance reporting (before certification of Environmental Management System)

Hunter Water must submit a compliance and performance report to IPART for each financial year on the programs that it is required to maintain under clause 6.1.4 of the Licence. Hunter Water must submit the report by **1 September** following the end of the financial year, or at a later date agreed to by IPART.

The report must include:

- ▼ details of the activities undertaken by Hunter Water to maintain the programs across its business to manage risks to the environment;
- ▼ any changes to the environmental improvement targets or timetables to achieve these targets;
- ▼ Hunter Water's performance in meeting the targets and timetables for the financial year; and
- ▼ programs and timetables identified for the next financial year to achieve environmental improvement targets.

⁴ Licence, clause 6.1.

[Note: Under clause 6.1.4 of the Licence, Hunter Water must maintain programs to manage risks to the environment from carrying out its activities, and ensure that its activities are carried out in accordance with those programs. In implementing those programs, Hunter Water must identify the targets for those programs. This section 6.2.1 requires Hunter Water to report on those programs and the targets.]

6.2.2 Compliance and performance reporting (following certification of Environmental Management System)

Once the Environmental Management System is certified, Hunter Water must submit a compliance and performance report on its Environmental Management System to IPART for each financial year. Hunter Water must submit the report by **1 September** following the end of the financial year, or at a later date agreed to by IPART.

The report must include:

- ▼ a summary of the objectives and targets of the Environmental Management System;
- ▼ the environmental management activities and programs completed by Hunter Water in the financial year to meet the objectives and targets of the Environmental Management System;
- ▼ the results and outcomes from those activities and programs;
- ▼ the environmental management activities and programs proposed to be undertaken by Hunter Water to meet the objectives and targets of the Environmental Management System in the future, including the timetable for completion;
- ▼ any proposed significant changes to the Environmental Management System; and
- ▼ any failures in the Environmental Management System and the action taken to resolve them.

[Note: Under clauses 6.1.1 and 6.1.2 of the Licence, Hunter Water must develop and implement an Environmental Management System, i.e. a Management System that is consistent with the standard specified in the Licence. The standard outlines the components of an Environmental Management System, which includes identifying and developing objectives and targets for the System. This section 6.2.2 requires Hunter Water to report on how it complies with these Licence conditions. The environmental management activities and programs referred to in this section 6.2.2 are those that Hunter Water would need to undertake to achieve the objectives and targets of the Environmental Management System.]

6.3 Intermittent reporting

There is no intermittent reporting requirement under this section **Error! Reference source not found.** of the Reporting Manual.

6.4 Publicly available documents

Hunter Water must make the compliance and performance report on:

- ▼ its environmental programs (referred to in section 6.2.1 of this Reporting Manual); and
- ▼ the Environmental Management System (referred to in section 6.2.2 of this Reporting Manual),

available free of charge:

- ▼ on its website for downloading by any person; and
- ▼ at its offices for access or collection by any member of the public.

7 Quality management

This section sets out Hunter Water's reporting obligations for clause 7 of the Licence.

Hunter Water is required to develop and certify a Quality Management System by 30 June 2017.⁵ The reporting obligations set out in this section only arise once the Quality Management System has been developed and certified in accordance with the Licence.

7.1 Periodic reporting

There is no periodic reporting requirement under this section **Error! Reference source not found.** of the Reporting Manual.

7.2 Annual reporting

7.2.1 Compliance and performance reporting

Once the Quality Management System is certified, Hunter Water must submit a compliance and performance report on the Quality Management System to IPART for each financial year. Hunter Water must submit the report by **1 September** after the end of the financial year, or at a later date agreed to by IPART.

The report must include:

- ▼ the quality management activities and programs completed by Hunter Water in the financial year to meet the objectives of the Quality Management System;
- ▼ the results and outcomes from those activities and programs;
- ▼ the quality management activities and programs proposed to be undertaken by Hunter Water to meet objectives of the Quality Management System in the future, including the timetable for completion;
- ▼ any proposed significant changes to the Quality Management System; and
- ▼ any failures in the Quality Management System and the action taken to resolve them.

⁵ Licence, clause 7.1.1.

[Note: Under clauses 7.1.1 and 7.1.2 of the Licence, Hunter Water must develop and implement a Quality Management System, i.e. a Management System that is consistent with the standard specified in the Licence. This section 7.2.1 requires Hunter Water to report on how it complies with this Licence condition. The objectives referred to in this section 7.2.1 are those that Hunter Water would need to identify for the Quality Management System. The quality management activities and programs referred to in this section 7.2.1 are those that Hunter Water would need to undertake to achieve the objectives of the Quality Management System.]

7.3 Intermittent reporting

There is no intermittent reporting requirement under this section **Error! Reference source not found.** of the Reporting Manual.

7.4 Publicly available documents

Hunter Water must make the compliance and performance report on the Quality Management System (referred to in section 7.2.1 of this Reporting Manual) available free of charge:

- ▼ on its website for downloading by any person; and

at its offices for access or collection by any member of the public free of charge.

8 Performance monitoring

This section sets out Hunter Water's reporting obligations for clause 8 of the Licence.

8.1 Periodic reporting

There is no periodic reporting requirement under this section **Error! Reference source not found.** of this Reporting Manual.

8.2 Annual reporting

8.2.1 Compliance and performance reporting

Hunter Water must submit a compliance and performance report to IPART for each financial year on:

- ▼ Hunter Water's performance against the performance indicators set out in Appendix B to Appendix E of this Reporting Manual for the financial year;
- ▼ Hunter Water's analysis of any problems of a systemic nature arising from Hunter Water's performance against those performance indicators;
- ▼ Hunter Water's compliance with Water Pressure Standard, Water Continuity Standard and Wastewater Overflow Standard; and
- ▼ how Hunter Water has complied or not complied with the Water Pressure Standard, Water Continuity Standard and Wastewater Overflow Standard, including:
 - major factors (both positive and negative) that have influenced Hunter Water's performance, including factors that are both within Hunter Water's control and factors beyond Hunter Water's control; and
 - reasons for any variation (both positive and negative) between Hunter Water's performance in the financial year with performance in prior years.

Hunter Water must submit the report by **1 September** after the end of the financial year, or at a later date agreed to by IPART.

[Note: Under clause 4.2 of the Licence, Hunter Water is required to comply with the Water Pressure Standard, Water Continuity Standard and Wastewater Overflow Standard. This section 8.2.1 requires Hunter Water to report on how it complies with this Licence condition.]

Under clause 8.2 of the Licence, Hunter Water must comply with its reporting obligations in this Reporting Manual. This section 8.2.1 requires Hunter Water to report on its performance against the performance indicators. Please note that the IPART performance indicators are currently being reviewed. On completion of the review, IPART will update this Reporting Manual accordingly and notify stakeholders of the changes[.]

8.3 Intermittent reporting

There is no intermittent reporting requirement under this section 8 of this Reporting Manual.

8.4 Publicly available documents

Hunter Water is not required to make documents or reports publicly available under this clause 8 of the Reporting Manual.

[Note: IPART prepares an annual performance report on the public water utilities (including Hunter Water). The National Water Commission also prepares an annual national performance report of all urban water utilities (including Hunter Water). Both of these reports are publicly available.]

Error! Reference source not found. *requires Hunter Water to report on any significant changes to these matters. Hunter Water must also notify IPART of any proposed significant changes to the Customer Contract in accordance with this Reporting Manual (Licence, clause 5.1.2).]*

8.5 Statement of compliance

Our PWU audit guideline specifies the information that IPART requires for a statement of compliance. Hunter Water's statement of compliance must be provided in accordance with our PWU audit guideline.

[Note: Under clause 8.1, IPART may undertake an Operational Audit on Hunter Water's compliance with Licence. As part of the audit process, Hunter Water must provide a statement of compliance which identifies any non-compliance of which Hunter Water is aware.]

9 Other reporting

9.1 Audit recommendations

Hunter Water must report to IPART annually on the status of any audit recommendations and opportunities for improvement identified in the most recent Operational Audit and outlined in IPART's audit report to the Minister.

Our public water utility (PWU) audit guideline dated May 2012 specifies the information that IPART requires on the status update on the audit recommendations and opportunities for improvement. Hunter Water's report on the status update must provide the information as specified in our PWU audit guideline. Our PWU audit guideline is available on IPART's website at www.ipart.nsw.gov.au.

Hunter Water must submit the report to IPART by **31 March** each year, or at a later date agreed to by IPART.

[Note: Under clause 8.1 of the Licence, IPART or an Auditor may undertake an Operational Audit. This section 9.1 requires Hunter Water to report on the status of implementing recommendations and opportunities for improvement identified in an Operational Audit.]

9.2 Significant changes

Hunter Water must submit to IPART by **31 March** each year a report on any significant changes that have been made to the following since 31 March the previous year⁶:

- ▼ the Drinking Water Quality Management System;
- ▼ the Recycled Water Quality Management System;
- ▼ the Asset Management System;
- ▼ the Customer Contract;
- ▼ the programs maintained under clause 6.1.4 of the Licence;
- ▼ the Environmental Management System (once implemented in accordance with clause 6.1.3 of the Licence); and

⁶ The information on significant changes to systems may be used to inform the scope of Operational Audit.

- ▼ the Quality Management System (once implemented in accordance with clause 7.1.3 of the Licence).

[Note: Under the Licence, Hunter Water is required to develop and implement the Management Systems or maintain the programs referred to above (Licence, clauses 2.1, 2.2, 4.1, 6.1 and 7.1). This section 9.2 requires Hunter Water to report on any significant changes to these matters. Hunter Water must also notify IPART of any proposed significant changes to the Customer Contract in accordance with this Reporting Manual (Licence, clause 5.1.2).]

9.3 Statement of compliance

Our PWU audit guideline specifies the information that IPART requires for a statement of compliance. Hunter Water's statement of compliance must be provided in accordance with our PWU audit guideline.

[Note: Under clause 8.1, IPART may undertake an Operational Audit on Hunter Water's compliance with Licence. As part of the audit process, Hunter Water must provide a statement of compliance which identifies any non-compliance of which Hunter Water is aware.]



Appendices

A Timeline for reporting

Table A.1 Timing of regular reporting under Hunter Water’s Licence

Date	Report to	Required Report
Monthly	Customers (web)	▼ Monthly Drinking Water quality reports and presented on Hunter Water’s website
Monthly	NSW Health	▼ Reporting on fluoride monitoring
Quarterly	NSW Health	▼ Exception reporting on Drinking Water and Recycled Water quality
31 March	IPART	▼ Notification of changes to processes, procedures and systems ▼ Audit recommendation status update
1 September	IPART	▼ Compliance and performance reports ▼ Compliance with Water Pressure Standard, Water Continuity Standard and Wastewater Overflow Standard ▼ Performance Indicators

Table A.2 Timing of submission of unique reports

Date	Plan submitted to	Event
1 September 2014 and 2016	IPART	State of the assets report
No later than 31 July 2013	IPART	Proposed methodology for determining the Economic Level of Leakage
31 January 2014	IPART	Report on Economic Level of Leakage
Incident	NSW Health Customers	Incident water quality monitoring results

B | IPART performance indicators – water quality

The table in this appendix sets out the performance indicator required to be provided to IPART, as follows.

IPART Indicator No.	Indicator detail
WQ 1(H)	Microbiological compliance - Percentage of routine water quality samples that comply with the Australian Drinking Water Guidelines for E.Coli.
	Chemical/physical compliance - Percentage of routine water quality samples that comply with the Australian Drinking Water Guidelines for key chemical/physical parameters

C | IPART performance indicators - infrastructure

The tables in this appendix set out performance indicators required to be provided to IPART, as follows.

IPART Indicator No.	Indicator detail	Definitions
I 1	The number of properties affected by an unplanned water interruption duration of more than 1 hour and less than or equal to 5 hours.	<p>Property means any real property to which either or both of the following conditions apply:</p> <ul style="list-style-type: none"> a. the real property is connected to the water utility's Drinking water supply system, to the water utility's sewerage system or to the water utility's recycled water system and a charge for the services provided by one or more of those systems is levied on the owner of the real property; b. the real property is within a declared stormwater drainage area for which the utility imposes a stormwater charge upon the owner of real property in that area.
I 2	Occurrence of water interruptions to affected properties (i.e. the number of properties experiencing 3 or more Planned and Unplanned water interruptions) of more than one hour duration).	<p>Water Interruption means any event causing a total loss of water supply due to any cause. Water interruption excludes those caused by bursts or leaks in the service connection to internal plumbing or planned meter replacements. All interruptions not subject to notification caused by third parties or a power failure should be included. Exclude instances of reduced service levels due to, for example, low pressure. If a property experiences more than one interruption then it should be counted for each event. A water supply interruption, which causes loss of supply to 100 customers, is counted as 100 customer interruptions.</p> <p>Planned water interruption – water interruption initiated by the water utility for which at least 24 hours notice has been given to the customer.</p> <p>Unplanned water interruption means an interruption in which an occupier of a property has not received at least 24 hours notification of the interruption or an interruption that has occurred prior to the expiry of any notice provided to an occupier advising of an interruption. It also includes outages where the duration exceeds that originally notified. In this case the entire outage is classed as unplanned.</p>
I 3	Events leading to planned or unplanned water interruption where 250 or more properties experience an interruption of over 5hrs duration.	<p>Property and Planned water interruption as defined for indicators I 1 to I 3.</p> <p>Notes:</p> <ol style="list-style-type: none"> 1. For the purpose of this indicator, property refers to only residential properties. 2. Interruptions spanning any part of the peak period are to be included.
I 4 (H)	The number of residential properties affected by planned water supply interruptions in peak hours (5am -11pm).	

IPART Indicator No.	Indicator detail	Definitions
I 5	The number of properties in the utility's drinking water supply network experiencing a water pressure failure which is occasional or recurrent, but not permanent.	<p>Property as defined for indicators I 1 to I 3.</p> <p>A property experiences a water pressure failure if a pressure of less than 20 metres head is experienced for a continuous period of 30 minutes or more measured at the point of connection of the property to the water supply system (usually at the point of connection known as the 'main tap'), but does not include a situation in which the property experiences low water pressure on a day when peak day demand exceeds 370 megalitres per day.</p> <p>For the purpose of this indicator:</p> <p>(a) where connected properties are in multiple occupancy, each separately billed or occupied part shall be counted as one connected property. Connected properties currently unoccupied shall be included.</p> <p>(b) a Property is taken to have experienced a water pressure failure at each of the following times:</p> <ul style="list-style-type: none"> (i) when a person notifies the water utility that the Property has experienced a water pressure failure and that water pressure failure is confirmed by the water utility; or (ii) when the water utility's systems identifies that the Property has experienced a water pressure failure; and <p>(c) a property will not be taken to have experienced a water pressure failure if that water pressure failure occurred only because of:</p> <ul style="list-style-type: none"> (i) a planned water interruption or unplanned water interruption; (ii) water usage by authorised fire authorities in the case of a fire; or <p>a short term or temporary operational problem (such as a main break) which is remedied within 4 days of its occurrence.</p> <p>Occasional or recurrent, but not permanent water pressure failure includes one off failure sites.</p> <p>Properties with a permanent low water pressure failure refers to properties that record a failure for every day of the year and is calculated through the water utility's Water Pressure Reporting Proforma.</p>

IPART Indicator No.	Indicator detail	Definitions
I 6 (H)	Number of Priority 1 sewage overflows responded to in a year.	Priority 1 sewage overflows refers to overflow events that result in or contribute to personal injury, disease or significant damage to the environment.
I 7 (H)	Number of Priority 2 sewage overflows responded to in a year.	Priority 2 sewage overflows refers to overflow events that result in minor damage to property or the environment while not posing a significant health risk.
I 8	Number of residential customers' dwellings affected by sewer spills not contained within 1 hour of notification.	<p>Residential customer means a customer who: owns real property which is used as a principal place of residence.</p> <p>Property as defined for indicators I 1 to I 3.</p> <p>Sewer spills refers to a sewer spill caused by a fault in the water utility's sewerage system that discharges to a customer's dwelling. It does not include spills caused by faults in the service connection or house connection branch and the house service line.</p> <p>Contained means the sewage spill has ceased or has been alleviated. It does not include sewer spills caused by faults or blockages in the customer's pipes.</p>

D | IPART performance indicators - environment

The tables in this appendix set out performance indicators required to be provided to IPART, as follows.

IPART Indicator No.	Indicator detail	Definitions
E 1	Total number of proceedings and Penalty Notices under the Protection of the Environment Operations (POEO) Act 1997 issued to the water utility.	<p>Proceedings refers to proceedings in connection with the POEO Act for prescribed offences.</p> <p>Penalty Notice is a notice to the effect that, if the person served with the notice does not wish to have a specified penalty offence dealt with by a court, the person may pay the penalty prescribed under section 227 for the offence :</p>
E 2	Total number of proceedings and Penalty Notices under the Protection of the Environment Operations (POEO) Act 1997 issued to contractors engaged by the water utility.	<p>Note for E2 -this indicator refers to penalty notices which contractors inform the water utility were incurred whilst they were conducting works for the corporation. Each breach notice will be reported on the date that the contractor informed the water utility, not on the date the penalty was incurred or the date the notice was issued to the contractor.</p>
E 3	Total electricity consumption by water assets (kWh/ML of water supplied to be included).	<p>Water supplied is the total metered volume of water (potable or non-potable) supplied to customers over the reporting period plus estimated non-metered water supplied. This comprises the sum of residential water supplied, commercial, municipal and industrial water supplied and other water supplied (includes estimated non-metered water supplied). It Includes recycled water and urban stormwater used but excludes agricultural irrigation, environmental water and managed aquifer recharge.</p>
E 4	Total electricity consumption by sewer assets (KWh/ML of sewage collected).	<p>Sewage treated is the total volume of sewage collected by the utility, measured as treatment plant inflow, plus sewage treated by another business on behalf of the water utility e.g. wholesaler. This measure should equal the sum of volumes reported for residential, non-residential and non-trade waste collected and trade waste collected.</p>
E 5	Electricity consumption from renewable sources or generated by the water utility expressed as a percentage of total electricity consumption.	<p>Renewable energy is electricity sourced from non-fossil fuel sources.</p>
E 11	Total mass of biosolids produced by the water utility.	<p>Biosolids means the stabilised organic solids derived from sewage treatment processes.</p> <p>Total Mass means the quantity in dry tonnes of biosolids captured and removed from sewage treatment plants.</p>

IPART Indicator No.	Indicator detail	Definitions
E 12	Percent of solid waste recycled or reused expressed as a percentage of solid waste generated.	<p>Solid Waste is any solid substance that is discarded, rejected, unwanted, in surplus or abandoned. It does not include gas, energy, water, wastewater, biosolids diverted for beneficial reuse and reuse water.</p> <p>Recycled means the conversion of waste materials into a usable product or resource. The process of recycling includes the diversion or extraction of the material from the waste stream; the collection and sorting of recyclable materials; and the processing of those materials into products which can then be used (or sold for use). Materials are deemed to have been recycled when they are transferred to a facility for processing or manufacturing (eg, a recycling centre). Energy recovery, (or waste-to-energy) is another form of recycling, which involves recovery of latent energy rather than a physical resource.</p> <p>Re-use is the application of a diverted waste product to a subsequent use which may be the same or different from the original purpose, and which extends the life of the product, but without further manufacture. Beneficial re-use is generally taken to mean that the form of re-use delivers some benefit (economic, social or environmental).</p>
E 17	Total number and nature of proceedings or Penalty Notices of conditions under licences issued to the water utility by NOW for water management.	<p>Proceedings refers to proceedings in connection with the Water Management Act for prescribed offences.</p> <p>Penalty notice means a notice to the effect that, if the person served with the notice does not wish to have an alleged offence dealt with by a court, the person may pay, in accordance with the notice, the penalty specified in the notice.</p> <p>NOW means the NSW Office of Water.</p>

E | IPART performance indicators - customers

The tables in this appendix set out performance indicators required to be provided to IPART, as follows.

IPART Indicator No.	Indicator detail	Definitions
C 1	The percentage of complaints resolved within 10 business days.	<p>Complaint is defined in AS ISO 10002-2006 or the most recent up-date of that standard. This AS ISO defines a complaint as an expression of dissatisfaction made to an organisation, related to its products, or the complaints-handling process itself, where a response or resolution is explicitly or implicitly expected.</p> <p>The following examples are intended to provide some clarity to this definition.</p> <ul style="list-style-type: none"> - A contact requesting information is not a complaint. - A contact reporting a service difficulty or fault is not a complaint and these contacts are recorded separately. - A contact expressing dissatisfaction with repeat service difficulties and faults is a complaint. - A contact where a credit adjustment on the account has been made due to a meter misread is a complaint. - A contact that results in a water quality issue is a complaint (i.e., due to particles, discolouration, smell, taste, or a health issue). - A contact that results from an internal sewage overflow is a complaint. - Any Civil actions taken through a court for loss or damage arising from the water utility's performance under the Customer Contract is a complaint. - Complaints regarding repeat service difficulties or faults where they are from separate customers arising from the same cause, are counted as separate complaints. - More than one complaint from the same customer arising from the same cause are reported separately. - A complaint that is registered with EWON is a corporation complaint. - A contact regarding a matter that is not the responsibility of the Corporation is not recorded as a complaint. - A contact regarding flooding the water utility's Stormwater are considered to be a complaint. <p>Confirmed Low Water Pressure customer complaint means a complaint where there is known gauged data for a customer's complaint property at the same time and day as the customer contact.</p> <p>Unconfirmed Low Water Pressure customer complaint means all low water pressure customer complaints that are not confirmed customer complaints.</p>

IPART Indicator No.	Indicator detail	Definitions
		<p>Property as defined for indicators I 1 to I 3..</p> <p>Resolution of a complaint means that:</p> <ul style="list-style-type: none"> a. the complaint is resolved to a customer’s satisfaction; or b. the customer is provided with an explanation as to why no further action is proposed in relation to the complaint, or c. the customer is provided with a date when the issue will be resolved if the complaint is relating to future planned operational or capital works.
C 2	Percent of calls abandoned.	<p>Customer means any person who is taken to have entered into a Customer Contract with the water utility.</p>
C 3	Percent of metered accounts of customers that receive a bill not based on a business meter read for one year.	<p>A metered account refers to water usage metered account, which is billed based on volume. If a property has multiple meters and each metered account receives a separate bill based on a meter read, these should be reported as separate metered accounts for the purposes of this indicator. If a property has multiple meters and a single account is issued due to common ownership, the meters will also be treated as separate metered accounts for the purposes of this indicator.</p> <p>A customer meter read is one, which is provided by the customer to the utility.</p> <p>A business meter read is one taken by the utility or its contractor.</p> <p>An actual meter read is one taken by the water utility or its contractor or the customer (ie, includes both a customer meter read and a business meter read).</p>
C 4	Number per 1000 properties of contacts received by water utility that are requests for instalment or deferred payment plans.	<p>Property as defined for indicators I 1 to I 3.</p> <p>Instalment Plan is a mutual agreement, which results in an outstanding debt being paid in full by a given date through a schedule of regular payments.</p>
C 7	Percent of residential customers on instalment plans.	<p>Deferred payment plan refers to an arrangement between customers and the water utility for the deferred payment of outstanding service charges.</p>
C 8	Percent of non-residential customers on instalment plans.	<p>Residential customer means a customer who: owns real property which is used as a principal place of residence.</p> <p>Non-Residential customer means all properties not classified as a residential customer.</p>

IPART Indicator No.	Indicator detail	Definitions
C 9	Number of customers receiving payment assistance vouchers or payment assistance scheme credits.	Payment assistance vouchers are accountable documents handled through designated charity organisation to provide assistance to hardship-affected customers.
C 10	Value of payment assistance vouchers or payment assistance scheme credits provided to customers.	A payment assistance credit is a specified dollar value of emergency assistance allocated to the customers' account when they are unable to pay their water bill due to a financial crisis.
C 11	The total number of residential customers disconnected for non-payment of amounts owed to the utility.	Residential customer and Non-Residential customer definitions as defined for indicators C7 and C8.
C 12	The total number of non-residential customers disconnected for non-payment of amounts owed to the utility.	Disconnection means the stopping (either temporarily or permanently) of water supply to a customer's property.
C 13	Total number of residential customers on whom water flow restrictions have been imposed.	Flow Restriction means a direct intervention in the water supply system by the water utility in order to reduce flow to a customer's property.
C 14	Total number of non-residential customers on whom water flow restrictions have been imposed.	

F Drinking Water and Recycled Water quality management system report template

The following table is a template to be used for Hunter Water's compliance and performance report to IPART on its management of the quality of Drinking Water and Recycled Water, as set out in clause **Error! Reference source not found.** of this Reporting Manual.

ADWG Framework sub-element	Water quality objective	Activity/Program	Results/outcomes
<i>Example:</i> 4.1 – Operational procedures 7.2 – Employee training	<i>Example:</i> Consistent management of water quality	<i>Example:</i> Proceduralise the routine data analysis process and train staff in procedure	<i>Example:</i> All data analysts are trained in routine data analysis and respond consistently when new data arrives.
4.3 – Corrective action	pH target for specific WFP	pH buffering facilities at WFP to be installed	Project scheduled for completion in late 2012

