



Kyeema Wastewater

New Infrastructure Audit

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Independent Pricing and Regulatory Tribunal

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Document History

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Independent Pricing and Regulatory Tribunal

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1. Executive Summary

1.1 Auditor Declaration

This report presents the findings of a New Infrastructure Audit of Kyeema Wastewater Pty Ltd's compliance with the requirements of its Network Operator's Licence (Licence No: 20_044) and the relevant provisions of the *Water Industry Competition Act 2006* and the *Water Industry Competition (General) Regulation 2021* as they relate to the sewerage and effluent disposal (recycled water) scheme at Gundaroo.

The auditor confirms that:

- the auditor was provided with sufficient evidence on which to base the conclusions reached during the audit;
- the audit findings accurately reflect the professional opinion of the auditor;
- the auditor has conducted the audit, determined the audit findings and prepared this report in accordance with the requirements of the *WICA Act Audit Guidelines*¹ and the provisions of the Audit Deed; and
- the audit findings have not been unduly influenced by the Licensee and/or any of its associates and express the auditor's opinion as to whether the Licensee has met the Licence conditions and regulatory requirements as specified in the scope.

1.2 Major Findings

The Licensee, Kyeema Wastewater Pty Ltd, was found to have designed and constructed and to be able to operate and maintain the audited sewerage and effluent disposal (recycled water) scheme in compliance with the assessed audit criteria. No non-compliances have been identified.

1.3 Recommendations

No recommendations have been made as a result of this audit, nor have any opportunities for improvement been identified.

1.4 Conclusion

In the opinion of the auditors, the Licensee can commence commercial operation of the infrastructure (as described in **Section 2.2**) for the safe and reliable provision of sewerage and effluent (recycled water) disposal services at Gundaroo.

The auditors support the approval of commercial operation of these assets, which are to be operated under WICA Network Operator's Licence No: 20_044.

¹ IPART, *Audit Guideline; under the Water Industry Competition Act 2006*, July 2020.

2. Introduction

2.1 Objectives

This report presents the findings of a New Infrastructure Audit undertaken for the Independent Pricing and Regulatory Tribunal (IPART) under the provisions of the *Water Industry Competition Act 2006*.

The objective of the audit was to assess compliance of the Licensee, Kyeema Wastewater Pty Ltd (Kyeema Wastewater), in meeting the requirements of the relevant legislation (the *Water Industry Competition Act 2006* and *Water Industry Competition (General) Regulation 2021*) and its Network Operator's Licence (Licence No: 20_044) as they relate to the sewerage and effluent disposal (recycled water) scheme at Gundaroo.

It is noted that a separately reported Licence Plan Audit² was conducted in conjunction with this audit.

2.2 Licensee's Infrastructure, Systems and Procedures

The infrastructure, systems and procedures subject to audit are those related to the sewerage and effluent disposal (recycled water) scheme (the Scheme) that will service the "Kyeema Estate", a 51-Lot residential subdivision located at Gundaroo, approximately 30 kilometres north of Canberra (refer www.kyeemawastewater.com.au).³ The Water Industry Infrastructure comprises:

- Septic Tank Effluent Pumping (STEP) units located on each serviced property – these units provide primary treatment before pumping the effluent to a plant for secondary treatment; a total of 51 properties are ultimately to be serviced;
- Reticulated sewage effluent collection system (Orenco Effluent Sewer) – this is essentially a pressure sewer system which transports the primary effluent from the serviced properties to the treatment plant;
- Decentralised treatment plant comprising an AdvanTex™ Recirculating Packed Bed Reactor and associated nutrient removal process components – this will produce secondary effluent for subsequent disinfection;
- UV and chlorine disinfection facilities – these will comprise the final treatment processes in producing recycled water for reuse;
- Sub-surface irrigation system servicing an area of up to 6.5 hectares – will be used for effluent dispersal via irrigation of non-edible crop, pasture or woodlot; and
- Wet weather storage facility having a capacity of 11 megalitres – will provide for flow balancing of effluent (recycled water) production and irrigation demand.

Kyeema Wastewater Pty Ltd (ACN 635 577 105) is the Licensee, holding Network Operator's Licence No: 20_044. As Licensee, Kyeema Wastewater will own and be responsible for the ongoing operation and maintenance of the sewerage and effluent disposal (recycled water) scheme in accordance with its Licence Plans including:

² Cobbitty Consulting/Water Futures, *Kyeema Wastewater; Licence Plan Audit* (Version 2.0), 8 December 2021.

³ Website under development at the time of reporting.

- Nation Partners, *Infrastructure Operating Plan; Kyeema Wastewater Pty Ltd* (Version No: 2.0), 7 December 2021;
- Nation Partners, *Kyeema Wastewater Pty Ltd; Water Quality Plan* (Version 3.0), 7 December 2021; and
- Decentralised Water Consulting, *Kyeema Subdivision: Sewage Management Plan* (Revision 3), 21 January 2019, as amended by:
 - Addendum 1 dated 9 June 2021;
 - Addendum 2 dated 15 September 2021; and
 - Addendum 3 dated 7 December 2021.
- other relevant supporting documentation.

It is noted that the *Water Quality Plan* (previously Version 1.0 dated 14 September 2021) was updated, initially to Version 2.0 dated 3 December 2021 and subsequently to the current version, to address shortcomings that were identified in the draft report on the Licence Plan Audit conducted in conjunction with this audit.⁴ The *Infrastructure Operating Plan* (previously Version 1.0 dated 14 September 2021) was updated and Addendum 3 to the *Sewage Management Plan* prepared to align with the changes to the *Water Quality Plan*.

2.3 Audit Method

2.3.1 Audit Scope

The audit comprised a New Infrastructure Audit conducted pursuant to the *WIC Act Audit Guidelines*.⁵ The specific scope of the audit addresses selected requirements of:

- the *Water Industry Competition Act 2006*;
- the *Water Industry Competition (General) Regulation 2021*; and
- Network Operator's Licence No: 20_044;

in relation to the infrastructure that is proposed to be brought into commercial operation, which is as described in **Section 2.2**.

2.3.2 Audit Standard

The audit has been undertaken in accordance with the principles/guidance presented in:

- ISO 19011:2018 *Guidelines for auditing management systems*; and
- IPART, *Audit Guideline; under the Water Industry Competition Act 2006*, July 2020 (WIC Act Audit Guidelines).

2.3.3 Audit Steps

The audit has been undertaken generally in accordance with the procedure outlined in the *WIC Act Audit Guidelines*.

Following approval of an *Audit Proposal* by IPART, an *Information Request* was sent to both the Licensee and IPART approximately three weeks prior to the audit fieldwork being undertaken.

⁴ Cobbitty Consulting/Water Futures, *Kyeema Wastewater; Licence Plan Audit* (Version 1.0), 28 November 2021.

⁵ IPART, *Audit Guideline; under the Water Industry Competition Act 2006*, July 2020.

The Licensee provided an information pack in response to the request approximately one week prior to the audit fieldwork.

Audit fieldwork comprising a site inspection of existing infrastructure followed by a review and discussion (audit) of relevant documentation/records was undertaken on 27 October 2021. Some additional items of information and/or clarification were requested following the audit fieldwork and subsequently provided.

A draft audit report was prepared and submitted to both the Licensee and IPART for review /comment via the WILMA portal, following which Kyeema Wastewater updated its *Water Quality Plan* and provided additional information to address several identified shortcomings; consequential changes were also made to the *Infrastructure Operating Plan* and *Sewage Management Plan*. The report was then finalised and again issued to both parties via the WILMA portal.

The audit process involved seeking objective evidence that the Licensee had complied with the obligations identified for audit. Evidence was obtained through interview, review of relevant documentation and records, and site inspection.

2.3.4 Audit Team

The audit was conducted by Jim Sly and Dr Dan Deere, both of whom hold the required Lead Auditor accreditation on IPART's Technical Services and Water Licensing Panel. The two auditors collectively addressed the various components of the audit.

Jim Sly conducted the audit fieldwork, during which he was assisted by Mark Favetta. Mark has experience in major infrastructure project planning and delivery, including the development of project documentation, engineering management during construction, operations, regulatory licensing and capital and operations expenditure audits.

Quality assurance review of the audit report was undertaken by each auditor (Jim Sly and Dan Deere) reviewing the other auditor's work.

Kyeema Wastewater was represented by:

- Paul Carmody (Director, Kyeema Wastewater);
- Michelle Bruce (Nation Partners Pty Ltd – Consultant); and
- Brent Hawthorn (Innoflow Pty Ltd – Authorised Person).⁶





IPART representative Leonie Huxedurp attended as an observer during the 'desktop' component of the audit fieldwork.⁶

2.3.5 Audit Grades

Audit grades have been awarded in accordance with guidance presented in the *WIC Act Audit Guidelines*. The compliance grades applicable for the purposes of this audit were as identified in **Table 2.1**.

⁶ Brent Hawthorn and Leonie Huxedurp attended the 'desktop' component of the audit fieldwork via online video conferencing.

Table 2.1 Audit Compliance Grades

Compliance Grade	Description
 Compliant	Sufficient evidence is available to confirm that the requirements have been met.
 Non-compliant (non-material)	Sufficient evidence is not available to confirm that the requirements have been met and the deficiency does not adversely impact the ability of the Licensee to achieve defined objectives or assure controlled processes, products or outcomes.
 Non-compliant (material)	Sufficient evidence is not available to confirm that the requirements have been met and the deficiency does adversely impact the ability of the Licensee to achieve defined objectives or assure controlled processes, products or outcomes.
 No Requirement	There was no requirement for the Licensee to meet this criterion during the audit period.

2.4 Regulatory Regime

The Kyeema Wastewater scheme operates in accordance with the provisions of a Network Operator's Licence (Licence No: 20_044) issued under the *Water Industry Competition Act 2006* (NSW). Other relevant regulatory instruments and standards/guidelines include:

- *Water Industry Competition (General) Regulation 2021 (NSW)*;
- IPART, *Audit Guideline; under the Water Industry Competition Act 2006*, July 2020;
- *Australian Guidelines for Water Recycling: Managing Health and Environmental Risks (Phase 1) 2006*;
- *Plumbing Code of Australia*;
- *Plumbing and Drainage Act 2011 (NSW)*; and
- NSW and national water industry and environmental regulations and codes of practice as applicable.

2.5 Quality Assurance Process

The quality of this audit report was assured through a professional review process. The report has been independently reviewed by a Lead Auditor who holds relevant accreditation on IPART's Technical Services and Water Licensing Panel.

2.6 Audit Findings

Audit findings are summarised in the following **Section 3**, and are presented in full detail in **Appendix A**.

3. New Infrastructure

3.1 Summary of Findings

Under the provisions of *Water Industry Competition Act 2006*, the *Water Industry Competition (General) Regulation 2021* and the Network Operator's Licence, the Licensee is required to demonstrate the adequacy of any new infrastructure prior to it being introduced into service.

Kyeema Wastewater was found to be compliant with the audited clauses of the *Water Industry Competition (General) Regulation 2021* and the Network Operator's Licence as they apply to the sewerage and effluent disposal (recycled water) infrastructure at Gundaroo. Detailed assessment in respect of these clauses is presented in **Appendix A**.

3.2 Review of Actions

The draft audit report identified shortcomings/non-compliances in respect of two aspects of the audited requirements, as follows:

- *WIC Reg Sched 1 cl.2(2)(b) – the infrastructure is capable of operating safely* – Kyeema Wastewater had not demonstrated that the arrangements (a microfilter) for the removal of helminths would be effective and had not identified or implemented arrangements for monitoring performance in doing so.
- *WIC Reg Sched 1 cl.2(2)(b) – the infrastructure is capable of operating in accordance with the management plans* – inconsistencies in monitoring setpoints (actual settings versus those documented in the *Water Quality Plan*), the inability to confirm critical limit setpoints in the telemetry /SCADA system and the absence of sufficient performance records meant that the ability of the infrastructure to operate in accordance with the *Water Quality Plan* could not be confirmed.

Subsequent to issue of the draft audit report, the Licensee has taken actions that address these shortcomings. These actions include:

- Update of all documentation to remove reference to the intended use of fodder produced by irrigating pasture with recycled water for cattle. This negates the requirement for helminth removal, although the microfilter provided for this purpose remains in place.
- Adjustment of the SCADA/telemetry setpoint interface to more clearly display settings (which were previously hidden in code), thereby enabling alignment with the *Water Quality Plan* to be clearly demonstrated.
- Provision of online performance monitoring records that demonstrate the ability of the treatment plant produce effluent (recycled water) of the specified quality.

The effect of these actions is reflected in the detailed assessment of compliance documented in this report.


3.3 Opportunities for Improvement

No opportunities for improvement have been identified in respect of the audited obligations.

Appendix A Detailed Audit Findings – New Infrastructure

Detailed audit findings are presented in this Appendix.

Table A.1 New Infrastructure Audit Table – WIC Act s10(4)(a) and s13(2)(a) and Network Operator’s Licence Sched B cl.1

Clause	Requirement	Compliance Grade
WIC Act s10(4)(a) and s13(2)(a) and Network Operator’s Licence Sched B cl.1	The Licensee must have the technical, financial and organisational capacity to carry out the activities authorised by this Licence. If the Licensee ceases to have this capacity, it must report this to IPART immediately in accordance with the Reporting Manual.	 Compliant
Risk	Target for Full Compliance	
This presents a high operational risk. Without the technical, financial and organisational capacity to carry out the activities authorised by the Licence, the Licensee may be unable to meet its obligations under the Licence, specifically the safe and effective delivery of agreed levels of service.	Evidence that the Licensee has the technical, financial and organisational capacity to carry out the activities authorised by the Licence. Documentation of procedures for identifying, and reporting to IPART, if the Licensee ceases to have the technical, financial and organisational capacity to carry out the activities authorised by the Licence.	
Evidence sighted		
<ul style="list-style-type: none"> ▪ Interviews with Kyeema Wastewater representatives on 27 October 2021. ▪ Site inspection of infrastructure at Gundaroo on 27 October 2021. ▪ Nation Partners, <i>Infrastructure Operating Plan; Kyeema Wastewater Pty Ltd</i> (Version No: 2.0), 7 December 2021. ▪ NSW Government, <i>Network Operator’s Licence No: 20_044</i> (as amended on 26 July 2021). ▪ IPART, <i>Assessment of Kyeema Wastewater Pty Ltd’s network operator’s and retail supplier’s licence application for the Gundaroo scheme; Report to the Minister for Water, Property and Housing</i>, July 2020 ▪ Paul Carmody Curriculum Vitae (as included in Appendix A3c and A3d of the Kyeema Wastewater WICA Licence Application). ▪ <i>Agreement for Supply and Installation of a Wastewater Treatment Plant; Kyeema Subdivision (51 Lots)</i> between Innoflow Australia Pty Ltd and Kyeema Management Pty Ltd, 10 January 2021. ▪ <i>Wastewater Treatment Plant and Land Application System; Service Contract</i> between Innoflow Australia Pty Ltd and Kyeema Wastewater Pty Ltd, 10 January 2021. ▪ Innoflow, <i>Kyeema Community Wastewater System Supply and Installation; Innoflow Australia Pty Ltd Company Profile and Relevant Experience</i>, October 2021. ▪ Innoflow, <i>Kyeema Subdivision; Proposal for a Decentralised Wastewater Scheme</i>, 15 January 2019. ▪ Innoflow, <i>Advantex O&M Manual; Kyeema Wastewater; Wastewater Treatment Plant</i>, September 2021. ▪ Nation Partners, <i>Kyeema Wastewater Pty Ltd; Pollution and Incident Emergency Response Plan</i> (Version 1.0), 20 October 2021. 		

Summary of reasons for grade

Kyeema Wastewater demonstrated that, principally through its contracted service provider Innoflow (an Authorised Person under the Licence), it holds the technical and organisational capacity to carry out the activities authorised by the Licence. Furthermore, IPART assessed that it also held the financial capacity to do so at the time the Licence Application was assessed (July 2020).

Kyeema Wastewater also demonstrated that it has review procedures in place, through which it would identify and subsequently report to IPART, if it ceases to have the technical, financial or organisational capacity required to carry out the activities authorised by the Licence.

Accordingly, Kyeema Wastewater was assessed as being compliant with this obligation.

Discussion and notes

Technical Capacity:

Kyeema Wastewater has no direct technical experience in respect of the activities authorised under the Licence (i.e. the provision of sewerage services); however, owner/Director Paul Carmody has extensive experience in the construction and development industries, including the management of capital works programs. Paul's curriculum vitae⁷ indicates that: "Paul is a very hands on operational leader with a very strategic mindset." These attributes were observed during the audit process.

In the *Infrastructure Operating Plan*,⁸ Kyeema Wastewater indicates that:

"Kyeema Wastewater, as the licensee under the Water Industry Competition Act 2006, relies on the technical expertise of Innoflow Australia Pty Ltd (Innoflow) for the operation and maintenance of the sewage treatment system."

It is noted that Innoflow is identified as an 'Authorised person' under the Licence,⁹ consistent with the assessment that Kyeema Wastewater is reliant on both its technical and organisational capacity.¹⁰

Roles and responsibilities in respect of the ongoing operation and maintenance of the scheme are detailed in the *Infrastructure Operating Plan*.¹¹ This indicates that responsibility for all roles requiring technical experience in the operation and maintenance of sewerage schemes has been assigned to Innoflow under contract to Kyeema Wastewater. Kyeema Wastewater maintains responsibility for management roles as well as customer interface roles (which relate to its Retail Supplier's Licence).

Kyeema Wastewater has engaged Innoflow under two separate contracts, as follows:

- Supply and installation contract¹² – under which Innoflow was engaged to undertake/oversee design, construction and commissioning of the scheme infrastructure; and
- Service contract¹³ – under which Innoflow has been engaged to under operation and maintenance of the scheme for an initial period of 5-years from 10 January 2021.

Innoflow's experience is detailed in a Company Profile¹⁴ which provides details of its organisational profile, relevant experience and key staff members. Similar information was previously provided in the report *Proposal for a Decentralised Wastewater Scheme*.¹⁵ These documents indicate that Innoflow has

⁷ Paul Carmody Curriculum Vitae (as included in Appendix A3c and A3d of the Kyeema Wastewater WICA Licence Application).

⁸ *Infrastructure Operating Plan*, sections 1.4 and 2.2.3.

⁹ *Network Operator's Licence*, table 3.1.

¹⁰ IPART, *Assessment of Kyeema Wastewater Pty Ltd's network operator's and retail supplier's licence application for the Gundaroo scheme; Report to the Minister for Water, Property and Housing*, July 2020, section 4.3.1.

¹¹ *Infrastructure Operating Plan*, section 1.4 (table 1).

¹² *Agreement for Supply and Installation of a Wastewater Treatment Plant; Kyeema Subdivision (51 Lots)* between Innoflow Australia Pty Ltd and Kyeema Management Pty Ltd, 10 January 2021.

¹³ *Wastewater Treatment Plant and Land Application System; Service Contract* between Innoflow Australia Pty Ltd and Kyeema Wastewater Pty Ltd, 10 January 2021.

¹⁴ Innoflow, *Kyeema Community Wastewater System Supply and Installation; Innoflow Australia Pty Ltd Company Profile and Relevant Experience*, October 2021.

¹⁵ Innoflow, *Kyeema Subdivision; Proposal for a Decentralised Wastewater Scheme*, 15 January 2019.

extensive relevant experience, principally in New Zealand, but also including a project for Yarra Valley Water in Melbourne.

Curriculum vitae/profiles for (for example) Kevin Higham (Project Manager/Chief Operations Officer) and Brent Hawthorn (Technical Manager), both of whom have been actively involved in the project to date, and Angus Morris (Serving Manager) reveal that they have significant experience in wastewater treatment systems.

It is noted that Innoflow is New Zealand based (head office in Auckland); however, it has an office in Australia, and it is understood that it has short-term plans to engage a locally based service technician.

On the basis of the sample of evidence reviewed and discussions with the abovementioned people during the audit fieldwork, it is apparent that Kyeema Wastewater, through its engagement of Innoflow, has the technical capacity to carry out the activities authorised by the Licence.

Financial Capacity:

The Auditor has not directly assessed this criterion. It is noted, however, that in the process of assessing Kyeema Wastewater's Network Operator's Licence Application, IPART assessed that:¹⁶

"We are satisfied that Kyeema has the financial capacity to undertake the proposed activities."

Organisational Capacity:

Further to the above observation in respect of Kyeema Wastewater's reliance on Innoflow's technical capacity and expertise, it also follows that it is also reliant on Innoflow's organisational capacity.

Review of Innoflow's Company profile¹⁷ indicates that it has a team of some twenty-five (25) persons providing Design, Project management and Servicing services, and associated financial management, and manufacturing support and quality assurance. It also identifies external resources that are available to and have provided support to the project including Bill Hensley (International Project Manager) and Dave Norlin (International Systems Engineer) from Orenco Systems and Seth Keller who provides support in respect of telemetry control systems. Orenco Systems is a USA based company that provides wastewater products and solutions, including the STEP units, Orenco Effluent Sewer (collection system) and the AdvanTex™ Recirculating Packed Bed Reactors used in the scheme.

Capacity can also be assessed from the perspective of organisational preparedness to undertake the authorised activities. In addition to the arrangements detailed in Kyeema Wastewater's management plans, requirements for operation and maintenance of the scheme are detailed in the *Operations and Maintenance Manual*.¹⁸ It has also developed a *Pollution Incident and Emergency Response Plan*,¹⁹ which outlines the procedures to be implemented in the event of an incident that threatens or could threaten public health or the environment.

Loss of Capacity:

The *Infrastructure Operating Plan*,²⁰ in detailing the assignment of roles and responsibilities, indicates that the *Infrastructure Operating Plan* will be implemented and regularly reviewed. This is taken to include review of its ongoing capacity to operate and maintain the scheme; arrangements for review and reporting are also detailed within the *Plan*.

The *Infrastructure Operating Plan*²¹ further indicates that Innoflow is responsible for the training of personnel involved in operation and maintenance of the scheme. The *Service Contract*²² between

¹⁶ IPART, *Assessment of Kyeema Wastewater Pty Ltd's network operator's and retail supplier's licence application for the Gundaroo scheme; Report to the Minister for Water, Property and Housing*, July 2020, section 4.3.1.

¹⁷ Innoflow, *Kyeema Community Wastewater System Supply and Installation; Innoflow Australia Pty Ltd Company Profile and Relevant Experience*, October 2021.

¹⁸ Innoflow, *Advantex O&M Manual; Kyeema Wastewater; Wastewater Treatment Plant*, September 2021.

¹⁹ Nation Partners, *Kyeema Wastewater Pty Ltd; Pollution and Incident Emergency Response Plan (Version 1.0)*, 20 October 2021.

²⁰ *Infrastructure Operating Plan*, section 1.4.

²¹ *Infrastructure Operating Plan*, section 5.2.

²² *Wastewater Treatment Plant and Land Application System; Service Contract* between Innoflow Australia Pty Ltd and Kyeema Wastewater Pty Ltd, 10 January 2021, sections 5.6 and 5.7.

Kyeema Wastewater and Innoflow requires all work to: “... *be carried out by a suitably trained service technician(s) ...*” and enables Innoflow to: “... *subcontract/engage a third party to provide the services ...*” or any other activity. This in effect assigns responsibility for maintaining adequate capacity to Innoflow.

Kyeema Wastewater acknowledges its obligations and details its arrangements in respect of review and reporting to IPART.²³ In the event that Kyeema Wastewater identifies that it has ceased to have capacity to carry out the activities authorised by the Licence, it will notify IPART in accordance with the *Reporting Manual*.

Recommendations


There are no recommendations in respect of this obligation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this obligation.

²³ *Infrastructure Operating Plan*, section 5.4.

Table A.2 New Infrastructure Audit Table – WIC Reg Sched 1 cl.2(1)


Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.2(1)	The licensee must not bring any new water or sewerage infrastructure into commercial operation without the written approval of the Minister.	 Compliant
Risk	Target for Full Compliance	
This presents a high operational risk. The Minister's written approval is only provided when the Licensee has demonstrated that the infrastructure complies and can be operated in accordance with the relevant requirements. The absence of the Minister's written approval may mean that the infrastructure has not been so assessed.	Evidence that the Licensee has obtained the written approval of the Minister prior to bringing any new water or sewerage infrastructure into commercial operation.	
Evidence sighted	<ul style="list-style-type: none"> ▪ Interviews with Kyeema Wastewater representatives on 27 October 2021. ▪ Site inspection of infrastructure at Gundaroo on 27 October 2021. ▪ Nation Partners, <i>Infrastructure Operating Plan; Kyeema Wastewater Pty Ltd</i> (Version No: 1.0), 14 September 2021. ▪ NSW Government, <i>Network Operator's Licence No: 20_044</i> (as amended on 26 July 2021). 	
Summary of reasons for grade	Kyeema Wastewater had not, at the time of the audit fieldwork, brought any of the water or sewerage infrastructure that is the subject of this audit into commercial operation. Accordingly, no infrastructure had been brought into commercial operation without the Minister's written approval to do so, and Kyeema Wastewater is assessed as being compliant with this obligation.	
Discussion and notes	<p>Kyeema Wastewater advised that no infrastructure had been brought into commercial operation at the time of the audit. Inspection of the infrastructure revealed no evidence to the contrary. The treatment plant had been commissioned and the infrastructure was operating to convey and treat primary effluent from two properties owned by the Kyeema Wastewater Director, Paul Carmody (effectively owned by Kyeema Wastewater); however, none of the infrastructure to be operated under the Licence²⁴ was found to be operating commercially.</p> <p>Consequently, it was apparent that Kyeema Wastewater had not, at the time of the audit fieldwork, brought any new infrastructure into commercial operation without the written approval of the Minister.</p>	
Recommendations	There are no recommendations in respect of this obligation.	

²⁴ *Network Operator's Licence*, table 3.2.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this obligation.

Table A.3 New Infrastructure Audit Table – WIC Reg Sched 1 cl.2(2)(b)

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.2(2)(b)	The infrastructure is capable of operating safely.	 Compliant

Risk	Target for Full Compliance
This presents a high operational risk. The risk is generally managed by the implementation of an asset management system/framework that outlines the basis for the ongoing management of the infrastructure assets.	Demonstration that the infrastructure is capable of operating safely.

Evidence sighted

- Interviews with Kyeema Wastewater representatives on 27 October 2021.
- Site inspection of infrastructure at Gundaroo on 27 October 2021.
- Nation Partners, *Infrastructure Operating Plan; Kyeema Wastewater Pty Ltd* (Version No: 2.0), 7 December 2021.
- Nation Partners, *Kyeema Wastewater Pty Ltd; Water Quality Plan* (Version 3.0), 7 December 2021.
- Decentralised Water Consulting, *Kyeema Subdivision: Sewage Management Plan* (Revision 3), 21 January 2019, as amended by Addendum 1 dated 9 June 2021, Addendum 2 dated 15 September 2021 and Addendum 3 dated 7 December 2021.
- Innoflow, *Kyeema Subdivision; Proposal for a Decentralised Wastewater Scheme*, 15 January 2019.
- Document: *Kyeema Commissioning Checklist.pdf*.
- *Certificate of Compliance for Plumbing and Drainage Work* dated 30 April 2021 (filename: 4078 Gundaroo Road STEP.pdf).
- *Certificate of Compliance for Plumbing and Drainage Work* dated 20 September 2021 (filename: Sewer Mains Cert of Compliance signed copy Kyeema.pdf).
- Document: *Inspection & Test Results Kyeema Sewage Test Information copy.pdf*.
- Curtis Barrier International, *4078 Gundaroo Road Subdivision; Sewerage Treatment Plant; Dam Lining Project; Construction QA/QC Report*, 26 March 2021.
- Innoflow, *Advantex O&M Manual; Kyeema Wastewater; Wastewater Treatment Plant*, September 2021.
- Nation Partners, *Kyeema Wastewater Pty Ltd; Pollution and Incident Emergency Response Plan* (Version 1.0), 20 October 2021.
- Nation Partners, *Kyeema Wastewater Pty Ltd; Sewage Tankering Procedure*, undated.
- MS Excel workbook: *Appendix B - CEMP Induction and Training Register.xlsx*.

Summary of reasons for grade

Kyeema Wastewater has demonstrated that the sewerage and effluent disposal (recycled water) infrastructure that is to be brought into service is capable of operating safely. It is evident that the infrastructure has been properly designed and constructed so that it meets its functional requirements, including the production of recycled water of the required quality; adequate resources are available to operate and maintain the infrastructure; and there are management plans, an operation and maintenance manual and other supporting documentation in place to ensure that operation and maintenance activities are undertaken in an appropriate manner. Relevant safety measures are also in place.

Accordingly, Kyeema Wastewater is assessed to be compliant with this obligation.

Discussion and notes

Overview:

As reported in Section 2.2 of this report, the infrastructure that is to be brought into commercial operation, and is therefore the subject of this audit, comprises:

- Septic Tank Effluent Pumping (STEP) units to be located on each serviced property (at the time of the audit, units had been installed on two properties);
- Reticulated sewage effluent collection system (Orenco Effluent Sewer), which is essentially a pressure sewer collection network;
- Decentralised treatment plant comprising:
 - an AdvanTex™ Recirculating Packed Bed Reactor (which includes membrane filtration);
 - associated nutrient (phosphorus and nitrogen) removal process components;
 - a microfilter (Helminth removal); and
 - Chlorine and UV disinfection facilities;
- Sub-surface irrigation system servicing an area of up to 6.5 hectares; and
- Wet weather storage facility having a capacity of 11 megalitres.

The ability of the infrastructure to operate safely and reliably is dependent upon:

- the infrastructure having been properly designed and constructed;
- appropriate resources being available to operate and maintain the infrastructure;
- procedures for operation and maintenance of the infrastructure being available; and
- appropriate management arrangements being in place.

Each of these aspects is discussed in the following. Further discussion in relation to the proper design and construction, safe and reliable operation and proper maintenance of the infrastructure is presented in Table A.5.

Design and Construction:

The design basis for the scheme is detailed in the *Sewage Management Plan* and appended *Proposal for a Decentralised Wastewater Scheme*,²⁵ and is reflected in both the *Infrastructure Operating Plan* and *Water Quality Plan*. It was developed through a process involving a land capability assessment to determine the capacity of the available land to accommodate the disposal of treated sewage effluent (recycled water) by irrigation and an extensive investigation of alternative sewage collection and treatment systems/arrangements.

²⁵ InnoFlow, *Kyeema Subdivision; Proposal for a Decentralised Wastewater Scheme*, 15 January 2019.

The adopted scheme arrangement was considered to provide the most effective system for the proposed residential development. It was adopted on the basis that: "... the subdivision will be serviced by a safe, sustainable and independently regulated sewerage service that is consistent with planning and regulatory requirements".²⁶

Kyeema Wastewater provided evidence that the infrastructure had been constructed in accordance the required standards, including (for example):

- A completed *Commissioning Checklist*,²⁷ which details inspection and test results in respect of each primary component of the treatment plant.
- A *Certificate of Compliance*²⁸ in respect of the installation of an on-property STEP tank, which indicates that the work had been completed in compliance with AS/NZS 3500 *Plumbing and drainage*.
- A *Certificate of Compliance*²⁹ in respect of the pressure sewer installation works, which indicates that this work had been completed in compliance with AS/NZS 3500 *Plumbing and drainage*.
- An *Inspection and Test Results*³⁰ record, which indicates that Stages 1 and 2 of the pressure sewer network were separately tested and that, after minor leaks identified visually during the pre-test had been repaired, both stages returned satisfactory test results.
- A *Construction Quality Assurance Report*³¹ in respect of the wet weather storage membrane liner. The detailed report included: CQA test and installation details; Drawings; Subgrade approval forms; Inspection and test plans (completed); Material MQA; Supporting evidence; and Project sign-off.

Justification for the claimed LRV (log reduction values) to be achieved by the treatment plant and on-site preventative measures is detailed in the *Water Quality Plan*,³² together with the critical control point (CCP) limits required to achieve those reductions. Total log reductions claimed/required are detailed as follows:

Preventative measure /Barrier	Log Reduction Value		
	Virus	Protozoa	Bacteria
Chlorination	4	0	4
On-site preventative measures	4	4	4
Total Claimed	8	4	8
Required	5.0	3.5	4.0

Kyeema Wastewater notes that log reductions associated with other preventative measures being implemented, specifically primary and secondary treatment, membrane filtration UV disinfection and public exclusion from the irrigation area, have not been claimed. It estimates that these measures would provide additional log reduction of 1-4.

This indicates that effective implementation of the preventative measures will ensure that the recycled water produced by and used within the scheme will be safe from both public health and environmental perspectives. An online review of the telemetry control interface demonstrated that operational and critical control point parameters can be effectively monitored, thereby providing a mechanism to ensure that preventative barriers are operating effectively.

²⁶ *Sewage Management Plan*, section 1.

²⁷ Document: *Kyeema Commissioning Checklist.pdf*.

²⁸ *Certificate of Compliance for Plumbing and Drainage Work* dated 30 April 2021 (filename: 4078 Gundaroo Road STEP.pdf).

²⁹ *Certificate of Compliance for Plumbing and Drainage Work* dated 20 September 2021 (filename: Sewer Mains Cert of Compliance signed copy Kyeema.pdf).

³⁰ Document: *Inspection & Test Results Kyeema Sewage Test Information copy.pdf*.

³¹ Curtis Barrier International, 4078 Gundaroo Road Subdivision; Sewerage Treatment Plant; Dam Lining Project; Construction QA/QC Report, 26 March 2021.

³² *Water Quality Plan*, section 4.3.

It is noted that previously identified concerns regarding validation of the adequacy of the microfilter proposed for the removal of helminths has been negated. As reported in respect of the separate Licence Plan Audit³³ conducted in conjunction with this audit, the use of the recycled water for the irrigation of cattle fodder is no longer proposed.

Inspection of the infrastructure during the audit site inspection revealed that it has been well constructed to a high standard, which provides a basis for safe operation of the scheme. This includes, for example:

- On-property STEP tanks installations are such that safety hazards are minimised. The tanks are fully buried; the only aboveground obstacle is the control panel (refer Figure A.3.1).
- Valve pits at property connection points and isolation points within the pressure sewer network are clearly identified (refer Figure A.3.2).
- Pipework and equipment within the treatment plant building is arranged in a clear and logical manner, and is well labelled, thereby providing a sound environment from both operational and safety viewpoints (refer Figures A.3.3, A.3.4, A.3.5).
- The wet weather storage is enclosed by security fencing and has recycled water signage at the entry points (refer Figure A.3.6).

On the basis of the above discussion, it is apparent that the various components of infrastructure have been designed and constructed such that they are capable of being operated safely for their intended purposes.

Resourcing:

As noted above, the safe and reliable performance of infrastructure is in part dependent upon the resources engaged for operation and maintenance. As discussed in Table A.1, through its engagement of Innoflow to provide operation and maintenance services, Kyeema Wastewater has both the technical and organisational capacity to carry out the activities authorised by the Licence.

Kyeema Wastewater will maintain a site presence (effectively 24-hour, 7-days) and will undertake weekly inspections under Innoflow's direction. Innoflow will monitor performance online and will attend site to undertake maintenance activities in accordance with the maintenance schedule, and as otherwise required.

It is therefore considered that the resourcing arrangements that are in place are appropriate to ensure the safe operation of this low maintenance scheme.

Operation and Maintenance:

As noted above, the safe and reliable performance of infrastructure is also dependent upon the implementation of effective operational, maintenance, condition monitoring and refurbishment /replacement practices. Lifecycle management of the infrastructure, including arrangements in relation to planning and design, asset creation and procurement, operational strategy, maintenance strategy, asset renewal strategy and asset information is documented in the *Infrastructure Operating Plan*.³⁴ The *Water Quality Plan*,³⁵ and to a lesser extent the *Sewage Management Plan*,^{36,37} also address the operation of the infrastructure and the associated monitoring requirements.

More detailed guidance in relation to operation and maintenance of the infrastructure is set out in the *Operation and Maintenance Manual*.³⁸

³³ Cobbitty Consulting/Water Futures, *Kyeema Wastewater; Licence Plan Audit* (Version 2.0), 8 December 2021, tables B.3 and B.9.

³⁴ *Infrastructure Operating Plan*, section 3.

³⁵ *Water Quality Plan*, section 2.4.

³⁶ *Sewage Management Plan*, appendices B and C.

³⁷ Information presented in the *Sewage Management Plan* informs operation of the irrigation area.

³⁸ Innoflow, *Advantex O&M Manual; Kyeema Wastewater; Wastewater Treatment Plant*, September 2021.

Ongoing operation and maintenance may be contingent upon having appropriate contingency or incident management plans and related procedures in place. These include:

- The *Operation and Maintenance Manual* includes both a “troubleshooting” guide and “Contingency Plan”.³⁹
- The *Pollution Incident and Emergency Response Plan*⁴⁰ identifies the key actions to be taken to minimise and control the impacts of an environmental, water quality and/or public health incident, and nominates staff responsibilities.
- At a detail level, the *Tankering Procedure*⁴¹ (for example) sets out requirements for the off-site disposal of untreated or partially treated sewage, or excess treated effluent, in the event of an incident that threatens or could threaten public health or the environment.

Safety Management:

Relevant safety measures are in place including, for example:

- Health and safety guidelines are documented in the *Operations and Maintenance Manual*.⁴²
- Site inductions – evidence of safety training being implemented:
 - a verbal site induction was provided to the auditors when they arrived on site to conduct the audit fieldwork; and
 - training records for induction in respect of the requirements of the *Construction Environmental Management Plan* (which included site safety) was sighted during the audit site inspection.⁴³
- A safety shower and eye wash unit was installed adjacent to the door of the site office/treatment plant building in which chemicals are stored; instructions for use were fixed to the wall adjacent to the unit.
- A first aid kit was available in the site office/treatment plant building.
- Chemical storage containers were clearly labelled and Safety Data Sheets were available in close proximity (i.e. within the site office/treatment plant building).
- All pipework within the treatment plant building was clearly labelled, all recycled water pipework and appurtenances were appropriately coloured (purple/lilac) and labelled.
- Access to both the wet weather storage and irrigation area is restricted (security fencing around the wet weather storage) with signage alerting to the use of recycled water in place.

These arrangements support an assessment that the infrastructure is capable of operating safely.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this obligation.

³⁹ Innoflow, *Advantex O&M Manual; Kyeema Wastewater; Wastewater Treatment Plant*, September 2021, pages 50 and 55 respectively.

⁴⁰ Nation Partners, *Kyeema Wastewater Pty Ltd; Pollution and Incident Emergency Response Plan* (Version 1.0), 20 October 2021.

⁴¹ Nation Partners, *Kyeema Wastewater Pty Ltd; Sewage Tankering Procedure*, undated.

⁴² Innoflow, *Advantex O&M Manual; Kyeema Wastewater; Wastewater Treatment Plant*, September 2021, page 54.

⁴³ MS Excel workbook: *Appendix B - CEMP Induction and Training Register.xlsx*.



Figure A.3.1 On-property STEP tank installation.



Figure A.3.2 Property connection point and isolation valve covers are clearly labelled.



Figure A.3.3 Chlorine dosing pipework and equipment, and Helminth filter.

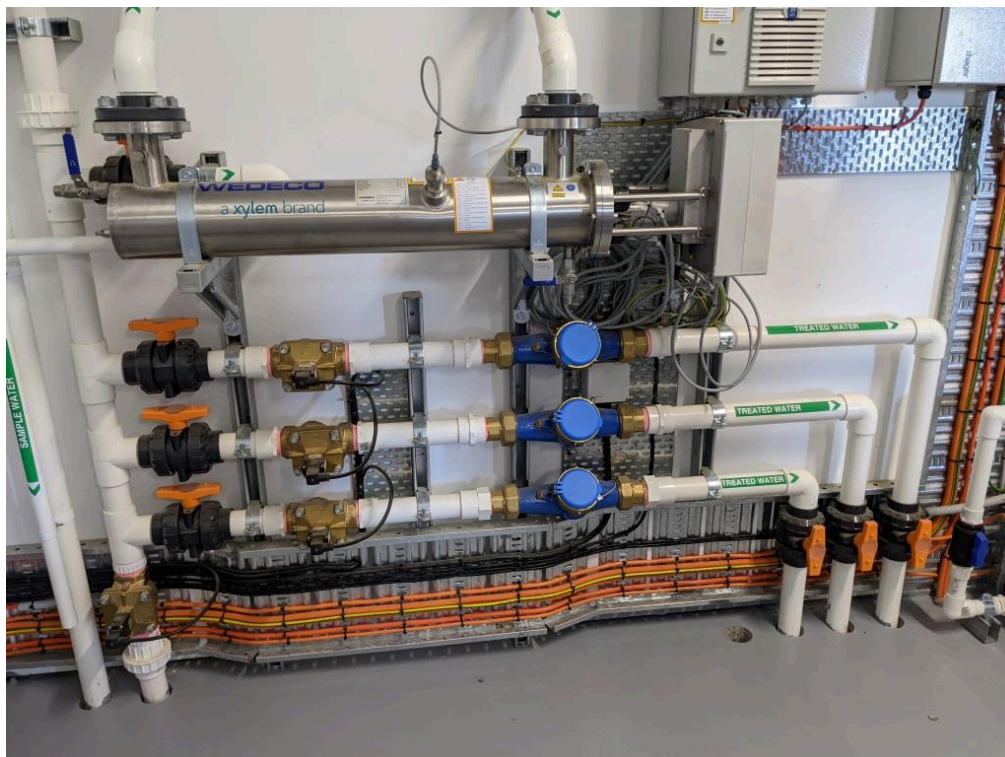


Figure A.3.4 UV disinfection pipework discharge lines to the three irrigation areas (valves at bottom right).

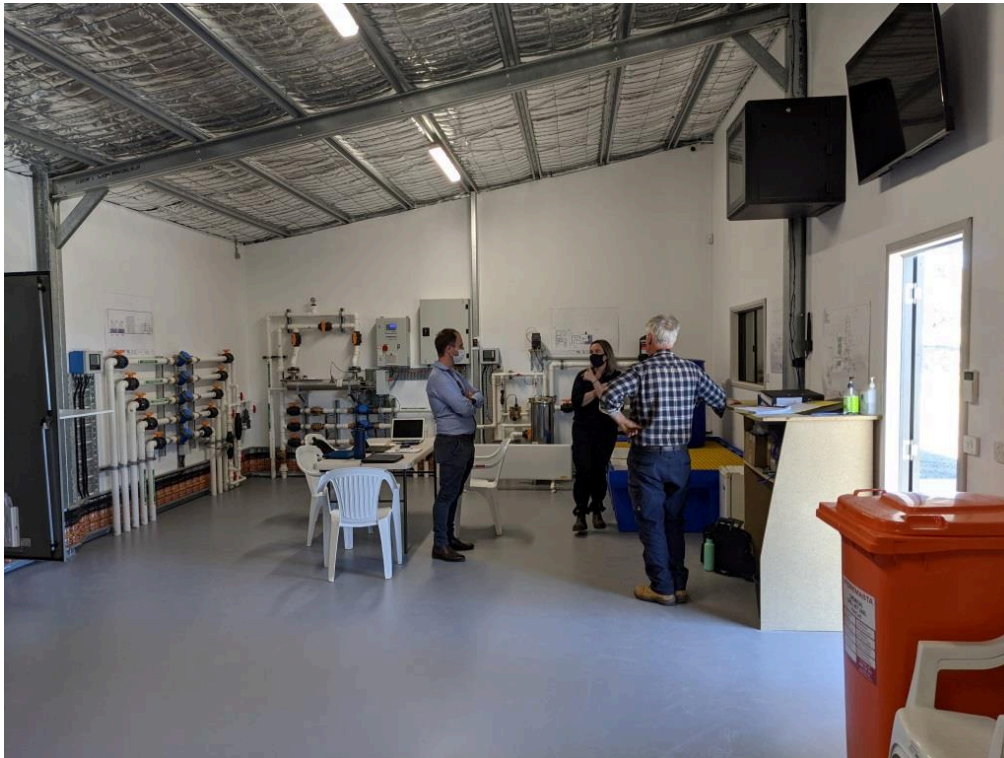



Figure A.3.5 Treatment plant building arrangement showing arrangement.



Figure A.3.6 Wet weather storage is enclosed within security fencing; recycled water signage at point of entry.

Table A.4 New Infrastructure Audit Table – WIC Reg Sched 1 cl.2(2)(b)

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.2(2)(b)	The infrastructure is capable of operating in accordance with its Infrastructure Operating Plan and its Water Quality Plan or Sewage Management Plan.	 Compliant

Risk	Target for Full Compliance
This presents a high operational risk. The ability of the infrastructure to operate in accordance with the relevant management plan(s) is essential to the effective delivery of agreed levels of service.	Demonstration that the infrastructure is capable of operating in accordance with the relevant management plan(s).

Evidence sighted

- Interviews with Kyeema Wastewater representatives on 27 October 2021.
- Site inspection of infrastructure at Gundaroo on 27 October 2021.
- Nation Partners, *Infrastructure Operating Plan; Kyeema Wastewater Pty Ltd* (Version No: 2.0), 7 December 2021.
- Nation Partners, *Kyeema Wastewater Pty Ltd; Water Quality Plan* (Version 3.0), 7 December 2021.
- Decentralised Water Consulting, *Kyeema Subdivision: Sewage Management Plan* (Revision 3), 21 January 2019, as amended by Addendum 1 dated 9 June 2021, Addendum 2 dated 15 September 2021 and Addendum 3 dated 7 December 2021.
- Innoflow, *Kyeema Subdivision; Proposal for a Decentralised Wastewater Scheme*, 15 January 2019.
- *Wastewater Treatment Plant and Land Application System; Service Contract* between Innoflow Australia Pty Ltd and Kyeema Wastewater Pty Ltd, 10 January 2021.
- Sample *Maintenance Service Report* (filename: *SR N567 Jacks Point 23 & 24-09-2021.pdf*) and Monitoring Spreadsheet (filename: *JP N5 N6 N7.xlsx*).
- Letter (reference D21/21987) dated 20 September 2021 from IPART to Kyeema Wastewater (re: *Non-compliances identified in Kyeema's 2021 annual return for licence number 20_044*).
- MS Excel workbook: *Kyeema Sensor Logs[1].xlsx*.
- Nation Partners, *Kyeema Wastewater Pty Ltd; Pollution and Incident Emergency Response Plan* (Version 1.0), 20 October 2021.

Summary of reasons for grade

Kyeema Wastewater has demonstrated that the sewerage and effluent disposal (recycled water) infrastructure that is to be brought into service is capable of operating in accordance with the relevant management plans (*Infrastructure Operating Plan*, *Water Quality Plan* and *Sewage Management Plan* in the context of this audit). Arrangements are in place to facilitate operation and maintenance in accordance with the *Infrastructure Operating Plan*; monitoring arrangements detailed in the *Water Quality Plan* are in place/being implemented and available records indicate that the treatment plant is capable of producing effluent (recycled water) of the specified quality; and the infrastructure and receiving environment monitoring arrangements detailed in the *Sewage Management Plan* have also been implemented.

Accordingly, Kyeema Wastewater is deemed to have demonstrated compliance with this obligation.

Discussion and notes

The design basis for the scheme is detailed in the *Sewage Management Plan* and appended *Proposal for a Decentralised Wastewater Scheme*,⁴⁴ and is reflected in both the *Infrastructure Operating Plan* and *Water Quality Plan*. Arrangements in respect of operation and maintenance of the scheme are detailed more specifically in the *Infrastructure Operating Plan*⁴⁵ and the appended *Operation and Maintenance Manual*,⁴⁶ and the *Water Quality Plan*.⁴⁷

On the basis of the audit site inspections, it is apparent that the infrastructure has been configured to operate in accordance with the arrangements documented in the management plans and is capable of doing so. The following observations (for example) support this assessment:

- *Infrastructure Operating Plan:*

- A separate Licence Plan Audit (conducted in conjunction with this audit) of the provisions of the *Infrastructure Operating Plan* in respect of the continued safe and reliable performance of the infrastructure found that:⁴⁸

“The Infrastructure Operating Plan indicates the arrangements in relation to the lifecycle management of the infrastructure, the effective implementation of which will ensure the continued safe and reliable performance of the infrastructure. Referenced documents, including the Operator’s Manuals and a portfolio of more detailed procedures, will support implementation of the arrangements set out in the Infrastructure Operating Plan.”

By inference, this also means that the new infrastructure is capable of operating in accordance with (the intent of) the *Infrastructure Operating Plan*.

- The proposed operations and maintenance *Service Contract* between Kyeema Wastewater and Innoflow is in place.⁴⁹ The contract is reflective of the roles and responsibilities documented in the *Infrastructure Operating Plan*.
- Templates are in place (samples provided)⁵⁰ for recording of maintenance activities.
- Equipment performance/condition indicators are being monitored via the telemetry system, including (for example) motor current (with alerts for under/over current) and runtime is monitored for each pumpset.
- Annual compliance reporting has been initiated; submission of a report in respect of the 2020/21 financial year was acknowledged by IPART.⁵¹

- *Water Quality Plan:*

- An online review of the telemetry control interface demonstrated that monitoring of operational and critical control point parameters is in place. Screenshots showing ‘alert’ (‘Max/Min Alarm’) and critical limit (‘Upper/Lower CCP’) setpoints for critical control point and other parameters were provided (refer Figures A.4.1 and A.4.2). Settings were found to be consistent with those documented in the *Water Quality Plan*.
- Online monitoring of operational parameters, including those associated with the chlorination critical control point, are being monitored (see below for further discussion).

⁴⁴ Innoflow, *Kyeema Subdivision; Proposal for a Decentralised Wastewater Scheme*, 15 January 2019.

⁴⁵ *Infrastructure Operating Plan*, principally sections 2.2.3, 2.6, 2.9 and 3.3.

⁴⁶ Innoflow, *Advantex O&M Manual; Kyeema Wastewater; Wastewater Treatment Plant*, September 2021.

⁴⁷ *Water Quality Plan*, section 5.

⁴⁸ Cobbitty Consulting/Water Futures, *Kyeema Wastewater; Licence Plan Audit (Version 2.0)*, 8 December 2021, table A.2.

⁴⁹ *Wastewater Treatment Plant and Land Application System; Service Contract* between Innoflow Australia Pty Ltd and Kyeema Wastewater Pty Ltd, 10 January 2021.

⁵⁰ *Sample Maintenance Service Report* (filename: *SR_N567 Jacks Point_23 & 24-09-2021.pdf*) and *Monitoring Spreadsheet* (filename: *JP_N5_N6_N7.xlsx*).

⁵¹ Letter (reference D21/21987) dated 20 September 2021 from IPART to Kyeema Wastewater (re: *Non-compliances identified in Kyeema’s 2021 annual return for licence number 20_044*).

- Verification monitoring of water quality parameters has been commenced (see below for further discussion).
- An incident management plan (the *Pollution Incident and Emergency Response Plan*⁵²) has been developed (although it has not yet been tested).
- Annual compliance reporting has been initiated (as reported above).
- *Sewage Management Plan:*
 - The whole of the sewerage and effluent disposal (recycled water) scheme, including the first on-property STEP tanks and first stage of the irrigation area infrastructure, is in place and operational.
 - Monitoring arrangements, including soil moisture and rainfall, for management of the irrigation area are in place. Review of the telemetry control interface revealed that these parameters are being monitored.

Other aspects of the *Sewage Management Plan* are effectively addressed through implementation of the requirements of the *Infrastructure Operating Plan* and *Water Quality Plan*.

To assess performance of the treatment plant in producing effluent (recycled water) of the quality specified in the *Water Quality Plan*, the auditor reviewed available online monitoring records for critical control point parameters and verification monitoring test results. It is noted that at the time of reporting, average daily flows through the treatment plant are in the order of 670 litres per day; this is negligible in comparison to the design flow of 32 kilolitres per day (average dry weather) and 80 kilolitres per day (peak daily).

Data records for online monitoring of the critical control point parameters to date indicate that all parameters lie within the respective limits.⁵³ Chlorine residual (for example) varied between 0.6 and 1.4 mg/L, which compares to the critical limits of >0.5 mg/L and <2 mg/L.

Verification monitoring to date has been limited to testing of two samples, one taken in June 2021, i.e. shortly after the plant commenced operation, and a second at the end of October 2021. The *Water Quality Plan*⁵⁴ indicates that testing is to be undertaken in respect of BOD₅, Total Suspended Solids, Total Nitrogen, Total Phosphorous and *E. coli*. Test results and specified targets in respect of these parameters are shown as follows:

Parameter	Target		Results (by sample date)	
	Average	95%ile	8 June 2021	29 October
BOD ₅ (mg/L)	10	20	<2	<2
Total Suspended Solids (mg/L)	10	30	<2	2
Total Nitrogen (mg/L)	35	-	0.89	6.76
Total Phosphorous (mg/L)	12	-	0.25	0.37
<i>E. coli</i>	<10 cfu/100 mL	-	<1 MPN/100 mL	<1 MPN/100 mL

Although limited in number, these results confirm performance in accordance with the specified limits. More extensive verification monitoring would normally be expected prior to assessing the infrastructure to be suitable to commence commercial operation, however, in view of the negligible flows currently being processed by the treatment plant it is not considered that additional testing would be informative at this stage.

⁵² Nation Partners, *Kyeema Wastewater Pty Ltd; Pollution and Incident Emergency Response Plan* (Version 1.0), 20 October 2021.

⁵³ MS Excel workbook: *Kyeema Sensor Logs[1].xlsx*.

⁵⁴ *Water Quality Plan*, section 3.1.2.

On the basis of the available records, it is considered that the ability of the treatment plant to produce effluent (recycled water) of the quality specified in the *Water Quality Plan* has been demonstrated for the purposes of this audit. In view of the minimal flows/loading under which the plant is currently operating, it will be prudent to further assess this ability as flows increase; this should be a focus of future operational audits.

In summary, the new infrastructure that is to be brought into commercial operation is considered to be capable of operating in accordance with all aspects of the *Infrastructure Operating Plan*, the *Water Quality Plan* and the *Sewage Management Plan* as appropriate

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this obligation.


		Home	Status	Sensor Settings	Settings Continued	2021-12-08-14:59:32	
Name		pH	pH2	UV Intensity	Transfer Tank Turbidity	Wet Well Turbidity	Dissolved Oxygen
Channel		29	40	30	31	32	33
Range		14.00	14.00	800.00	10.00	10.00	10.00
Enable		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Upper CCP		9.00	9.00	1000.00	5.00	5.00	10.00
Max Alarm Setpoint		8.50	8.50	900.00	3.00	3.00	8.00
Control Setpoint		7.50	7.50	600.00	2.00	2.00	6.00
Min Alarm Setpoint		7.00	7.00	500.00			5.00
Lower CCP		6.50	6.50	400.00			4.00

Figure A.4.1 Telemetry/SCADA setpoint screen showing setpoints for Chlorination CCP parameters pH2 and Transfer Tank Turbidity.

		Home	Status	Sensor Settings	Continued Settings	2021-12-08-14:59:14	
Name		Temperature	Chlorine	Moisture Sensor 3	Rainfall	Flow (kL)	CT
Channel		39	38	34	35	36	0
Range		30.00	100.00	100.00	100.00	100.00	50.00
Enable		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/> Off
Upper CCP		25.00	2.00	100.00	5.00	80.00	60.00
Max Alarm Setpoint		20.00	1.50	80.00	4.00	75.00	55.00
Control Setpoint		15.00	1.00				45.00
Min Alarm Setpoint		8.00	0.80				45.00
Lower CCP		5.00	0.50				41.00

Figure A.4.2 Telemetry/SCADA setpoint screen showing setpoints for Chlorination CCP parameters Temperature, Chlorine Residual and CT.

Table A.5 New Infrastructure Audit Table – WIC Reg Sched 1 cl.3

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.3	<p>The water or sewerage infrastructure is properly designed and constructed, operated in a safe and reliable way and maintained in a proper condition, having regard to:</p> <ul style="list-style-type: none"> (a) the purposes for which it is licensed; (b) the Licence conditions; and (c) publicly available standards or codes relating to the design, construction, operation and maintenance of the infrastructure. 	 Compliant

Risk

This represents high operational risk. Proper design and construction, safe and reliable operation and condition maintenance is essential to the effective delivery of agreed levels of service.

Target for Full Compliance

Evidence that the infrastructure is properly designed and constructed, and demonstration that it can be operated in a safe and reliable manner and properly maintained, having regard for the purposes for which it is licensed, the Licence conditions and any publicly available standards or codes. Evidence of procedures for ensuring that practices are kept up to date with any changes to such publicly available standards or codes.

Evidence sighted

- Interviews with Kyeema Wastewater representatives on 27 October 2021.
- Site inspection of infrastructure at Gundaroo on 27 October 2021.
- Nation Partners, *Infrastructure Operating Plan; Kyeema Wastewater Pty Ltd* (Version No: 2.0), 7 December 2021.
- Nation Partners, *Kyeema Wastewater Pty Ltd; Water Quality Plan* (Version 3.0), 7 December 2021.
- Decentralised Water Consulting, *Kyeema Subdivision: Sewage Management Plan* (Revision 3), 21 January 2019, as amended by Addendum 1 dated 9 June 2021, Addendum 2 dated 15 September 2021 and Addendum 3 dated 7 December 2021.
- NSW Government, *Network Operator's Licence No: 20_044* (as amended on 26 July 2021).
- InnoFlow, *Kyeema Subdivision; Proposal for a Decentralised Wastewater Scheme*, 15 January 2019.

Summary of reasons for grade

Kyeema Wastewater demonstrated, through the provision of documentation and audit site inspections, that the infrastructure that is to be brought into commercial operation has been properly designed and constructed and is capable of being safely operated and maintained having regard for:

- the purposes for which it is licensed;
- the Licence conditions; and
- any publicly available standards or codes relating to its design, construction, operation or maintenance (including typical industry practice).

Accordingly, Kyeema Wastewater is deemed to have demonstrated compliance with this obligation.

Discussion and notes

Overview:

A separate Licence Plan Audit,⁵⁵ conducted in conjunction with this audit, considers in detail the arrangements in relation to the design, construction, operation and maintenance of the infrastructure. That audit found that:

“The Infrastructure Operating Plan, in conjunction with referenced supporting documentation, appropriately indicates the arrangements adopted in relation to the design, construction, operation, maintenance and renewal (life cycle management) of the infrastructure that is the subject of this audit. These arrangements are considered to be appropriate and generally in accordance with industry practice for a scheme of this nature and scale.”

Implementation of those arrangements has been discussed (in part) in Table A.3 and Table A.4. The manner in which regard has been given to the purposes for which the infrastructure is licensed; the Licence conditions; and the guidance presented in publicly available standards or codes is discussed in the following.

Purposes for which the Infrastructure is Licensed:

Network Operator’s Licence No: 20_44 authorises use of the infrastructure for the following purposes:⁵⁶

- a) *production of treated non-potable water from sewage;*
- b) *treatment of sewage;*
- c) *filtration of sewage;*
- d) *storage of sewage;*
- e) *conveyance of sewage; and*
- f) *disposal of treated non-potable water through the irrigation of land.”*

Following review of the management plans (*Infrastructure Operating Plan, Water Quality Plan and Sewage Management Plan*), the design documentation and documented operation and maintenance procedures, as well as inspection of the constructed infrastructure, it is apparent that the infrastructure has been properly designed and constructed, and is capable of being operated in a safe and reliable manner and maintained in a proper condition having regard for the purposes for which it is licensed. This assessment is supported by the more detailed discussion presented in Table A.3.

Licence Conditions:

Licence conditions that impact on the design, construction, operation and maintenance of the infrastructure are principally those included in Schedule A, including:

- Clause A2.1 requires that the Licensee must:
 - a) *implement environmental risk mitigation measures substantially consistent with the environmental risk mitigation measures identified in the (REF) [Review of Environmental Factors]; and*
 - b) *specify, in any Plan or combination of Plans, how the Licensee will implement environmental risk mitigation measures substantially consistent with the environmental risk mitigation measures identified in the REF.”*

Compliance with this obligation is discussed in Table A.8; full compliance has been assessed.

- Clauses A3 requires that:
 - 3.1. *The Licensee must not commence, or authorise the commencement of, the construction of any Specified Water Industry Infrastructure until after the Licensee has provided a Construction Environmental Management Plan to IPART, and IPART has provided written approval of the Construction Environmental Management Plan to the Licensee.*

⁵⁵ Cobbitty Consulting/Water Futures, *Kyeema Wastewater; Licence Plan Audit* (Version 2.0), 8 December 2021, table A.1.

⁵⁶ *Network Operator’s Licence*, table 3.3.

3.2. *The Licensee must ensure that the construction of any Specified Water Industry Infrastructure is carried out in accordance with the approved Construction Environmental Management Plan.”*

Compliance with this obligation is discussed in Table A.9; full compliance has been assessed.

It is therefore considered that the infrastructure has been properly designed and constructed, and is capable of being operated in a safe and reliable manner and maintained in a proper condition having regard for the Licence conditions.

Compliance with Standards and Codes:

As reported in Table A.3, the design basis for the scheme is detailed in the *Sewage Management Plan* and appended *Proposal for a Decentralised Wastewater Scheme*,⁵⁷ and is reflected in both the *Infrastructure Operating Plan* and *Water Quality Plan*. The *Sewage Management Plan*⁵⁸ identifies the principal codes, standards, guidelines and regulatory requirements, in accordance with which the infrastructure has been designed and constructed; reference is also made to some specific codes in the *Infrastructure Operating Plan*.⁵⁹ These include (for example):

- *Australian Guidelines for Water Recycling (AGWR);*
- *WSA 07-2007 Pressure Sewerage Code of Australia;*
- *NSW DUAP, Sewerage Systems EIS Guideline, September 1996;*
- *ANZECC Australian Guidelines for Effluent Management;*
- *ANZECC Guidelines for Sewerage Systems – Biosolids Management;*
- *AS/NZS 1546.1:2008 On-site domestic wastewater treatment units Part 1: Septic tanks;*
- *AS/NZS 4130:2003 Polyethylene pipes for pressure applications;* and
- *AS/NZS 3500 Plumbing and drainage.*

Observations made during the audit site inspections confirmed the assessment that the infrastructure is compliant with relevant standards, codes and industry practice. Some relevant observations are summarised as follows:

- Pipe materials – pipe is compliant with the relevant standards and is appropriately coloured or labelled (refer Figure A.5.1):
 - Recycled water – lilac coloured PVC; and
 - Raw sewage – cream striped PE.
- All pipework and equipment within the treatment plant building was well labelled (refer Figures A.5.2).
- Pit covers were appropriately coloured and labelled (refer Figures A.5.3).
- The chemical dosing facilities appeared to be compliant with requirements, as follows:
 - All chemicals were stored over bunded areas (grated top tanks), which were clear of obstructions. The capacity of the tanks appeared to be well in excess of the volume of stored chemicals (refer Figure A.5.4).
 - All pipework and equipment was well labelled (refer Figure A.5.2).
 - A safety shower and eye wash was installed and a spill kit in place (refer Figures A.5.5).
- Signage indicating the use/presence of recycled water was on display at entry points the irrigation area and wet weather storage (refer Figure A.5.6).

⁵⁷ InnoFlow, *Kyeema Subdivision; Proposal for a Decentralised Wastewater Scheme*, 15 January 2019.

⁵⁸ *Sewage Management Plan*, section 3.

⁵⁹ *Infrastructure Operating Plan*, section 2.4 (table 4).

The referenced standards and codes, along with industry practice, provide guidance relevant to the operation and maintenance of the infrastructure, as well as its design and construction. Knowledge of industry practice is held by qualified and experienced personnel; as reported in Table A.1, through the engagement of InnoFlow, Kyeema Wastewater has the technical capacity (including extensive industry experience) to carry out the activities authorised by the Licence.

On the basis of these observations, it is apparent that the infrastructure has been properly designed and constructed, and is capable of being operated in a safe and reliable manner and maintained in a proper condition having regard for any publicly available standards or codes relating to its design, construction, operation and maintenance.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this obligation.



Figure A.5.1 Recycled water pipework in the irrigation field is coloured lilac; pressure sewers are cream striped and installed under maker tape with tracer wire.



Figure A.5.2 Chemical dosing pipework (for example) is well labelled.



Figure A.5.3 Valve pits adjacent to the treated effluent tank coloured lilac/purple; and Flushing pit in the irrigation area coloured purple and clearly labelled.



Figure A.5.4 Chemicals are stored over over bunded areas (grated top tanks).




Figure A.5.5 Bunded chemical dosing area; dosing pumps in background.



Figure A.5.6 Recycled water signage at entry point to the irrigation area.

Table A.6 New Infrastructure Audit Table – WIC Reg Sched 1 cl.6(2)(a) and WIC Reg Sched 1 cl.13(2)(a)

Clause	Requirement	Compliance Grade
WIC Reg Sched 1 cl.6(2)(a) and WIC Reg Sched 1 cl.13(2)(a)	The Infrastructure Operating Plan is fully implemented and kept under regular review and, in particular, that all of the licensee’s activities are carried out in accordance with that Plan.	 Compliant

Risk

This represents high operational risk. Implementation of the *Infrastructure Operating Plan* ensures the effective (safe and reliable) delivery of agreed levels of service.

Target for Full Compliance

Evidence that the *Infrastructure Operating Plan* is fully implemented and the Licensee’s activities are carried out in accordance with that *Plan*; evidence that the *Plan* is kept under regular review.

Evidence sighted

- Interviews with Kyeema Wastewater representatives on 27 October 2021.
- Site inspection of infrastructure at Gundaroo on 27 October 2021.
- Nation Partners, *Infrastructure Operating Plan; Kyeema Wastewater Pty Ltd* (Version No: 2.0), 7 December 2021.

Summary of reasons for grade

Kyeema Wastewater demonstrated that the *Infrastructure Operating Plan* is capable of being fully implemented and, to the extent applicable, is currently being so. Kyeema Wastewater also demonstrated that it has arrangements in place to ensure that the *Infrastructure Operating Plan* is kept under regular review.

Accordingly, Kyeema Wastewater is assessed to be compliant with this obligation.

Discussion and notes

Implementation of the Infrastructure Operating Plan:

As noted in Table A.5, a separate Licence Plan Audit⁶⁰ conducted in conjunction with this audit assessed that, in compliance with the *WIC Regulation*, the *Infrastructure Operating Plan* appropriately details of arrangements in relation to:

- the design, construction, operation and maintenance of the infrastructure;
- the continued safe and reliable performance of the infrastructure;
- the continuity of the water supply and sewerage services;
- alternative water supplies and sewerage services when the infrastructure is inoperable; and
- the maintenance, monitoring and reporting of standards of service.

At the time of the audit, the infrastructure that is the subject of this audit had been designed and constructed, but not yet brought into commercial operation. Notwithstanding, it was found that the infrastructure is ready to commence operation.

⁶⁰ Cobbitty Consulting/Water Futures, *Kyeema Wastewater; Licence Plan Audit* (Version 2.0), 8 December 2021, tables A.1 to A.5.

Detailed assessment (as documented in this report) has found that:

- the infrastructure is capable of operating safely (refer Table A.3);
- the infrastructure is capable of operating in accordance with its *Infrastructure Operating Plan*, as well as its *Water Quality Plan* and *Sewage Management Plan*, as appropriate (refer Table A.4); and
- the infrastructure has been properly designed and constructed and is capable of being safely operated and maintained having regard for the purposes for which it is licensed; the Licence conditions; and any publicly available standards or codes relating to its design, construction, operation or maintenance (including typical industry practice) (refer Table A.5).

It can therefore be reasonably concluded that the *Infrastructure Operating Plan* has been (to the extent applicable) and will be fully implemented and that all of the Licensee's activities will be carried out in accordance with the *Plan*.

Regular Review of Infrastructure Operating Plan:

The arrangements for regular review of the *Infrastructure Operating Plan* are documented therein, as follows:⁶¹

“This IOP will be reviewed:

- *Following a significant environmental or public health incident involving asset failure (if applicable),*
- *When there is a change to procedures or legislative requirements, and/or*
- *Annually.”*

It further notes that:

“An annual report will be prepared to inform both the annual review of the IOP and forward capital investment where asset replacement may be required to be scheduled in future years. The annual report will summarise, among other things: ... [a list of issues to be addressed is provided]

Kyeema Wastewater is responsible for undertaking the IOP review, making any necessary changes, and communicating any revision to the requirements of this IOP.”

The *Infrastructure Operating Plan*⁶² also notes that: *“Annual review of management plans, including the Infrastructure Operating Plan” is “To occur annually in the month of plan publishing ...”.*

As the versions of the *Infrastructure Operating Plan* (Version 1.0 dated 14 September 2021 and Version 2.0 dated 7 December 2021) provided for the purposes of this audit are together effectively the first formal version,⁶³ there has not yet been any requirement to undertake a review.

It is therefore apparent that Kyeema Wastewater has arrangements in place to ensure that the *Infrastructure Operating Plan* is kept under regular review.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement


No opportunities for improvement have been identified in respect of this obligation.

⁶¹ *Infrastructure Operating Plan*, section 5.4

⁶² *Infrastructure Operating Plan*, section 1.4 (table 1).

⁶³ The *Infrastructure Operating Plan* was updated to Version 2.0 to reflect changes to the *Water Quality Plan* made during the audit process.

Table A.7 New Infrastructure Audit Table – Network Operator’s Licence Section 3

Clause	Requirement	Compliance Grade
Network Operator’s Licence section 3	<p>In respect of the provision of sewerage services:</p> <p>(a) The Licensee and any Authorised Persons specified in the Licence have constructed, maintained, and operated the water industry infrastructure.</p> <p>(b) The Licensee and any Authorised Persons have constructed, maintained, and operated water industry infrastructure specified in the Licence.</p> <p>(c) The Licensee and any Authorised Persons have constructed, maintained, and operated the water industry infrastructure for the authorised purposes specified in the Licence.</p> <p>(d) The water industry infrastructure constructed, maintained, and operated by the Licensee or any Authorised Persons does not extend outside the area of operations specified in the Licence.</p>	 Compliant

Risk

This presents moderate risk that the appropriate operational controls may not be in place.

Target for Full Compliance

Evidence that the Licensee and authorised third parties have operated and/or maintained the specified infrastructure for the authorised purposes only within the area of operations.

Evidence sighted

- Interviews with Kyeema Wastewater representatives on 27 October 2021.
- Site inspection of infrastructure at Gundaroo on 27 October 2021.
- Nation Partners, *Infrastructure Operating Plan; Kyeema Wastewater Pty Ltd* (Version No: 2.0), 7 December 2021.
- Nation Partners, *Kyeema Wastewater Pty Ltd; Water Quality Plan* (Version 3.0), 7 December 2021.
- Decentralised Water Consulting, *Kyeema Subdivision: Sewage Management Plan* (Revision 3), 21 January 2019, as amended by Addendum 1 dated 9 June 2021, Addendum 2 dated 15 September 2021 and Addendum 3 dated 7 December 2021.
- NSW Government, *Network Operator’s Licence No: 20_044* (as amended on 26 July 2021).

Summary of reasons for grade

On the basis of the documentation reviewed, observations made during site inspections and discussions with Kyeema Wastewater representatives during the audit, it was assessed that the specified water industry infrastructure that is to be brought into commercial operation (and is the subject of this audit) has been constructed and will be operated and/or maintained by the Licence Holder and/or the authorised third parties for the authorised purposes and does/will not extend outside the specified area of operations. Accordingly, Kyeema Wastewater is assessed to be compliant with this obligation.

Discussion and notes

Overview:

Evidence was sought that the Licensee and any authorised persons have constructed and are/will be operating and/or maintaining the infrastructure specified in the Licence for the authorised purposes and that the infrastructure does not extend outside the specified area of operations.

Network Operator's Licence No: 20_044, as issued to Kyeema Wastewater Pty Ltd (Kyeema Wastewater) on 25 September 2020 and amended on 26 July 2021, authorises activities associated with the provision of sewerage services. The specific provisions of the Licence are discussed in the following, noting that this audit relates to infrastructure that is to be brought into commercial operation, including:⁶⁴

- Septic Tank Effluent Pumping (STEP) units located on each serviced property;
- a reticulated sewage effluent collection system;
- a decentralised treatment plant;
- a sub-surface irrigation system; and
- a wet weather storage facility.

Authorised persons:

The Licence nominates "*Innoflow Australia Pty Ltd (ACN 119 991 954)*" as an "Authorised person" in relation to the provision of sewerage services.⁶⁵

On the basis of explanations provided and observations made during the audit, it is understood that:

- All scheme infrastructure has been designed, supplied and installed by, or under the direction of, Innoflow. This is consistent with the arrangements outlined in the *Infrastructure Operating Plan*⁶⁶ and *Water Quality Plan*.⁶⁷
- Innoflow will be primarily responsible for operation and maintenance of the infrastructure, with Kyeema Wastewater also involved with some onsite activities (including physical monitoring or performance). This is again consistent with the arrangements outlined in the *Infrastructure Operating Plan*⁶⁶ and *Water Quality Plan*.⁶⁷
- Kyeema Wastewater has maintained, and will continue to maintain, oversight of all scheme design, construction, operation and maintenance activities.

Water industry infrastructure:

The Licence nominates the following "water industry infrastructure" for use in the provision of sewerage services:⁶⁸

- "1) *A treatment plant for sewage and other sewerage infrastructure used, or to be used, in connection with the treatment plant, where components of the treatment plant or other sewerage infrastructure may be used for one or more of the following purposes for water industry infrastructure:*
- a) production of treated non-potable water from sewage;*
 - b) treatment of sewage;*
 - c) filtration of sewage;*
 - d) storage of sewage; and*
 - e) conveyance of sewage.*

⁶⁴ Refer Section 2.2 for more detailed description.

⁶⁵ *Network Operator's Licence*, table 3.1.

⁶⁶ *Infrastructure Operating Plan*, sections 1.4 and 2.2.

⁶⁷ *Water Quality Plan*, section 2.2

⁶⁸ *Network Operator's Licence*, table 3.2.

-
- 2) *A reticulation network for sewage and other sewerage infrastructure used, or to be used, in connection with the reticulation network, where components of the reticulation network or other sewerage infrastructure may be used for one or more of the following purposes for water industry infrastructure:*
- g) production of treated non-potable water from sewage;*
 - h) treatment of sewage;*
 - i) filtration of sewage;*
 - j) storage of sewage;*
 - k) conveyance of sewage; and*
 - l) disposal of treated non-potable water through the irrigation of land.”*

Observations made during the audit fieldwork and review of the documentation provided (for example, drawings and sketches included in the *Infrastructure Operating Plan*)⁶⁹ confirmed that the infrastructure to be operated by Kyeema Wastewater and the Authorised Persons is consistent with the specified water industry infrastructure.

Authorised purposes:

The Licence nominates the following as the “authorised purposes” for which the “water industry infrastructure” can be used:⁷⁰

- “1) *A treatment plant for sewage and other sewerage infrastructure used, or to be used, in connection with the treatment plant, where components of the treatment plant or other sewerage infrastructure may be used for one or more of the following purposes for water industry infrastructure:*
- f) production of treated non-potable water from sewage;*
 - g) treatment of sewage;*
 - h) filtration of sewage;*
 - i) storage of sewage; and*
 - j) conveyance of sewage.*
- 2) *A reticulation network for sewage and other sewerage infrastructure used, or to be used, in connection with the reticulation network, where components of the reticulation network or other sewerage infrastructure may be used for one or more of the following purposes for water industry infrastructure:*
- m) production of treated non-potable water from sewage;*
 - n) treatment of sewage;*
 - o) filtration of sewage;*
 - p) storage of sewage;*
 - q) conveyance of sewage; and*
 - r) disposal of treated non-potable water through the irrigation of land.”*

Observation made during the audit fieldwork and discussions with Kyeema Wastewater representatives provided no indication that the infrastructure has been or will be used for non-authorised purposes.

Area of operations:

The Licence identifies the area of operations, i.e. the area within which the water industry infrastructure may be operated.⁷¹ The area of operations is defined by listing of vertex coordinates and a map (plan). Visual inspection and comparison with drawings shown in the management plans^{72,73,74} reveal that the area within which the infrastructure is located is consistent with the authorised area of operations.

On this basis, it is assessed that the infrastructure to be operated and/or maintained by Kyeema Wastewater lies within the specified area of operations.

⁶⁹ *Infrastructure Operating Plan*, appendices C and D.

⁷⁰ *Network Operator’s Licence*, table 3.2.

⁷¹ *Network Operator’s Licence*, table 3.3 and schedules D and E.

⁷² *Infrastructure Operating Plan*, appendix C.

⁷³ *Water Quality Plan*, appendix A.

⁷⁴ *Sewage Management Plan*, section 2.1


Recommendations

There are no recommendations in respect of these obligations.

Opportunities for improvement

No opportunities for improvement have been identified in respect of these obligations.

Table A.8 New Infrastructure Audit Table – Network Operator’s Licence Sched A cl.2

Clause	Requirement	Compliance Grade
Network Operator’s Licence Sched A cl.2	<p>Where the Licensee carries out any activities authorised by this Licence, the Licensee must:</p> <p>a) implement environmental risk mitigation measures substantially consistent with the environmental risk mitigation measures identified in the REF; and</p> <p>b) specify, in any Plan or combination of Plans, how the Licensee will implement environmental risk mitigation measures substantially consistent with the environmental risk mitigation measures identified in the REF.</p>	 Compliant

Risk

This represents moderate risk to the environment. It is important that measures to protect the environment are implemented during both construction and the subsequent operation and maintenance of the infrastructure.

Target for Full Compliance

Evidence that the Licensee has:

- implemented environmental risk mitigation measures substantially consistent with those identified in the REF; and
- specified how the Licensee will implement environmental risk mitigation measures substantially consistent with those identified in the REF.

Evidence sighted

- Interviews with Kyeema Wastewater representatives on 27 October 2021.
- Site inspection of infrastructure at Gundaroo on 27 October 2021.
- NSW Government, *Network Operator’s Licence No: 20_044* (as amended on 26 July 2021).
- Nation Partners, *Review of Environmental Factors – Part 5 EP&A Act 1979; Kyeema Wastewater Pty Ltd* (Version 2), 21 February 2020.
- Nation Partners, *Kyeema Wastewater Pty Ltd; Construction Environmental Management Plan* (Version 2.0), 5 November 2020.
- Nation Partners, *Infrastructure Operating Plan; Kyeema Wastewater Pty Ltd* (Version No: 2.0), 7 December 2021;
- Nation Partners, *Kyeema Wastewater Pty Ltd; Water Quality Plan* (Version 3.0), 7 December 2021.
- Decentralised Water Consulting, *Kyeema Subdivision: Sewage Management Plan* (Revision 3), 21 January 2019, as amended by Addendum 1 dated 9 June 2021, Addendum 2 dated 15 September 2021 and Addendum 3 dated 7 December 2021.
- Nation Partners, *Kyeema Wastewater Pty Ltd; Pollution and Incident Emergency Response Plan* (Version 1.0), 20 October 2021.
- Kyeema Wastewater, *Complaints Handling and Dispute Resolution Policy and Procedure* (Version 1.0), 20 October 2021.
- Nation Partners, *Kyeema Wastewater Pty Ltd; Irrigation Management Plan* (Version 1.0), 20 October 2021.

Summary of reasons for grade

Kyeema Wastewater demonstrated that, to the extent applicable to date, it has implemented environmental risk mitigation measures substantially consistent with the measures identified in the REF. As commercial operation of the scheme has not yet commenced, the implemented measures have been substantially focussed on the construction of the scheme infrastructure; however, arrangements are in place for the management/mitigation of potential environmental impacts during the ongoing operation of the scheme.

The specific arrangements for implementation of the mitigation measures identified in the REF are documented in a suite of management plans including a *Construction Environmental Management Plan* (construction phase) and the *Infrastructure Operating Plan*, *Water Quality Plan*, *Sewage Management Plan*, *Pollution and Incident Emergency Response Plan*, *Irrigation Management Plan* and *Complaints Handling and Dispute Resolution Policy and Procedure* (operation phase).

Accordingly, Kyeema Wastewater is assessed to have demonstrated compliance with both aspects of this obligation.

Discussion and notes

Overview:

Under the terms of the Licence,⁷⁵ the REF:

“means the document titled “Review of Environmental Factors – Part 5 EP&A Act 1979 – Kyeema Wastewater Pty Ltd”, Version 2, prepared by Nation Partners Pty Ltd and dated 21 February 2020 and does not include any modified version of that document or any document replacing it.”

The REF identifies mitigation measures in respect of:⁷⁶

- Soils and Geology;
- Hydrology and Water Quality;
- Air Quality and Odour;
- Noise and Vibration;
- Ecology;
- Aboriginal Heritage;
- Non-Aboriginal Heritage;
- Visual Amenity;
- Traffic and Access;
- Land Use and Utilities; and
- Waste Generation and Chemicals Management.

The REF further indicates that environmental impacts of construction and operation of the infrastructure are to be managed through specific plans including a Construction Environmental Management Plan, an Operational Environmental Management Plan, and an Emergency Response Plan. The management of environmental impacts includes implementation of the identified mitigation measures.

⁷⁵ *Network Operator's Licence*, schedule C section 2.

⁷⁶ REF, section 6.

Construction Environmental Management:

Kyeema Wastewater has prepared a *Construction Environmental Management Plan (CEMP)*,⁷⁷ which as reported in detail in Table A.9, has been approved by IPART. As also reported in Table A.9, it is apparent that the infrastructure has been constructed in accordance with the arrangements detailed in the CEMP; more specifically, the required mitigation measures were effectively implemented.

Operational Environmental Management:

Whilst the REF indicates that an Operational Environmental Management Plan (OEMP) was to be prepared, Kyeema Wastewater advised that, rather than preparing an OEMP, arrangements for implementation of mitigation measures during operation of the infrastructure have been detailed/documentated in other management plans. The key environmental management issues that were to be addressed in an OEMP⁷⁸ have been addressed as follows:

- Consent conditions:
 - Water Quality Plan.
- Effluent quality requirements:
 - Water Quality Plan;
 - Infrastructure Operating Plan; and
 - Sewage Management Plan and Addenda.
- Overflow prevention procedures:
 - Infrastructure Operating Plan;
 - Pollution and Incident Emergency Plan; and
 - Sewage Management Plan and Addenda.
- Requirements for chemical handling:
 - Water Quality Plan;
 - Infrastructure Operating Plan; and
 - Pollution and Incident Emergency Response Plan.
- Odour management:
 - Infrastructure Operating Plan; and
 - Complaints Handling Procedure.
- Noise management:
 - Infrastructure Operating Plan; and
 - Complaints Handling Procedure.
- Waste management:
 - Infrastructure Operating Plan.
- Irrigation management and scheduling weed management of irrigation areas:
 - Water Quality Plan;
 - Infrastructure Operating Plan; and
 - Irrigation Management Plan.

Review of these referenced plans reveals that mitigation measures are appropriately detailed. For example:

- Consent conditions:

Legislative and other formal requirements are identified, and approvals, licences and permits are listed in the *Water Quality Plan*.⁷⁹ From an environmental management perspective, gaining project

approval pursuant to Part 5 of the *Environmental Planning and Assessment Act 1979 (NSW)* was a key action.

- Effluent quality requirements:

Effluent quality requirements are clearly defined in the *Water Quality Plan*,⁸⁰ *Infrastructure Operating Plan*⁸¹ and *Sewage Management Plan*.⁸² More specifically, the *Water Quality Plan*⁸³ and *Sewage Management Plan*⁸⁴ detail the arrangements for achieving the required effluent quality.

- Requirements for chemical handling:

The *Water Quality Plan*⁸⁵ details the arrangements for handling and storage of chemicals. The *Pollution and Incident Emergency Response Plan*⁸⁶ identifies a chemical spill or leak as a type of incident; outlines responses for minor (Level 1), major (Level 2) and emergency (Level 3) chemical spill events; and includes an inventory of the chemicals kept on site.

Observations during the site inspection confirmed that chemicals were appropriately stored with bund containers within the site office/treatment plant building. Chemicals were appropriately separated, a shower/eye wash and spill kit were in place and safety data sheets were available.

- Odour management and Noise management:

The *Risk Register* included in the *Infrastructure Operating Plan*⁸⁷ (as well as the *Water Quality Plan*) identifies “*Ongoing noise and odours emitted from the treatment plant*” as a hazardous event, the impact of which would be “*Public health impacts to community from odours and noise*”. Although identified as a low risk, the identified control (mitigation) strategy included (for example):

- Separation distance between treatment plant and nearest resident/neighbour – site observations confirms that this measure to has been implemented.
- Kyeema Wastewater Complaints Procedure – this procedure is in place (refer further discussion below).
- Odour control integrated into the treatment plant – carbon canisters are fitted to process tanks vents.
- Routine inspection and maintenance program – the *Operation and Maintenance Manual*⁸⁸ outlines actions to be taken if odour is detected.
- Annual review of supporting management plans and processes including system data – arrangements for annual review of the *Infrastructure Operating Plan* (for example) are identified within the management plan.⁸⁹

Given that public health impacts to the community is identified as the potential impact of noise or odour emissions, it is appropriate that arrangements for the management of complaints are in place. Whilst the *Complaints Handling and Dispute Resolution Policy and Procedure*⁹⁰ does not specifically reference noise or odour, it does outline a process for effectively addressing complaints.

⁷⁷ Nation Partners, *Kyeema Wastewater Pty Ltd: Construction Environmental Management Plan* (Version 2.0), 5 November 2020.

⁷⁸ REF, section 7.1.2.

⁷⁹ *Water Quality Plan*, section 2.3.

⁸⁰ *Water Quality Plan*, section 3.12.

⁸¹ *Infrastructure Operating Plan*, section 2.3.3.

⁸² *Sewage Management Plan*, section 5.3.

⁸³ *Water Quality Plan*, principally sections 3 and 4 (the plan as a whole sets out the arrangements for maintaining water quality).

⁸⁴ *Sewage Management Plan*, section 2 and appendix A.

⁸⁵ *Water Quality Plan*, section 5.5.

⁸⁶ *Pollution and Incident Emergency Response Plan*, section 2.2, section 2.4 (table 3) and section 5.3 respectively.

⁸⁷ *Infrastructure Operating Plan*, appendix E.

⁸⁸ *Infrastructure Operating Plan*, appendix A.

⁸⁹ *Infrastructure Operating Plan*, section 5.4.

⁹⁰ Kyeema Wastewater, *Complaints Handling and Dispute Resolution Policy and Procedure* (Version 1.0), 20 October 2021.

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- Irrigation management and scheduling weed management of irrigation areas:

Arrangements in respect of irrigation management are detailed extensively in the *Water Quality Plan*⁹¹ (from a water quality perspective), *Infrastructure Operating Plan* (from an infrastructure provision, operation and maintenance perspective) and *Irrigation Management Plan*⁹² (which addresses all aspects).

Review of the *Infrastructure Operating Plan* (including the *Operational and Maintenance Manual*) and the *Irrigation Management Plan* confirm that arrangements for monitoring (including inspection) of potential environmental impacts are identified. For example, inspection and maintenance regimes are detailed, and the *Irrigation Management Plan* includes a *Trigger Response Plan* that identifies actions to be taken in response to a decline in crop health; waterlogging, surface ponding or runoff; excessive salinity in soil; or excessive sodicity in soil.

Based on this review, it appears that although an OEMP has not been prepared, arrangements for the implementation of measures to mitigate environmental risks during operation of the scheme have been appropriately documented.

Emergency Response:

As indicated in the REF, the *Pollution and Incident Emergency Response Plan* details arrangements for response to incidents, including (for example) sewer main blockages/breaks, treatment plant breakdown and/or overflow, and chemical spills. Specific notification requirements in respect of environmental pollution incidents are detailed.⁹³

Summary:

Based on the review and discussions outlined above, it is apparent that to the extent applicable to date, Kyeema Wastewater has implemented environmental risk mitigation measures substantially consistent with the measures identified in the REF. Furthermore, it has documented (specified) arrangements for implementation of the identified mitigation measures in its suite of management plans.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement


No opportunities for improvement have been identified in respect of this obligation.

⁹¹ *Water Quality Plan*, principally sections 3, 4 and 6 (from a controls perspective).

⁹² Nation Partners, *Kyeema Wastewater Pty Ltd; Irrigation Management Plan* (Version 1.0), 20 October 2021.

⁹³ Nation Partners, *Kyeema Wastewater Pty Ltd; Pollution and Incident Emergency Response Plan* (Version 1.0), 20 October 2021, section 4.2.2.

Table A.9 New Infrastructure Audit Table – Network Operator’s Licence Sched A cl.3

Clause	Requirement	Compliance Grade
Network Operator’s Licence Sched A cl.3	<p>[3.1] The Licensee must not commence, or authorise the commencement of, the construction of any Specified Water Industry Infrastructure until after the Licensee has provided a Construction Environmental Management Plan to IPART, and IPART has provided written approval of the Construction Environmental Management Plan to the Licensee.</p> <p>[3.2] The Licensee must ensure that the construction of any Specified Water Industry Infrastructure is carried out in accordance with the approved Construction Environmental Management Plan.</p>	 Compliant
Risk	<p>This represents moderate risk to the environment. It is important that measures to protect the environment are implemented during construction of the infrastructure.</p>	<p>Target for Full Compliance</p> <p>Evidence that:</p> <ul style="list-style-type: none"> ▪ the Licensee has provided IPART with a Construction Environmental Management Plan (CEMP) and that IPART has provided written approval prior to commencing construction of the identified infrastructure; and ▪ the Licensee has ensured that construction of the infrastructure has been carried out in accordance with the approved CEMP.
Evidence sighted		
<ul style="list-style-type: none"> ▪ Interviews with Kyeema Wastewater representatives on 27 October 2021. ▪ Site inspection of infrastructure at Gundaroo on 27 October 2021. ▪ Nation Partners, <i>Kyeema Wastewater Pty Ltd; Construction Environmental Management Plan (Version 2.0)</i>, 5 November 2020. ▪ Letter dated 19 November 2020 from IPART to Kyeema Wastewater (re: <i>Notification of approval – Construction Environmental Management Plan (CEMP) for Kyeema Wastewater Pty Ltd’s Gundaroo scheme</i>). ▪ Email dated 11 November 2021 from Kyeema Wastewater to Cobbitty Consulting (re: <i>Kyeema audit - Environmental Management</i>). ▪ <i>Certificate of Compliance for Plumbing and Drainage Work</i> dated 20 September 2021 (filename: <i>Sewer Mains Cert of Compliance signed copy Kyeema.pdf</i>). ▪ MS Excel workbook: <i>Appendix B - CEMP Induction and Training Register.xlsx</i>. ▪ <i>Weekly Environmental Inspection Checklist</i> for inspections undertaken on 11 December 2020, 1 February 2021, 22 February 2021 and 1 March 2021 		

Summary of reasons for grade

Kyeema Wastewater provided evidence that it submitted a *Construction Environmental Management Plan* (CEMP) in respect of construction of the infrastructure to IPART for approval, and that the CEMP had been approved by IPART prior to the commencement of any construction works. It also demonstrated that construction of the infrastructure had been carried out in accordance with the arrangements detailed in the CEMP.

Accordingly, it is assessed that Kyeema Wastewater has demonstrated compliance with this obligation.

Discussion and notes

Clause 3.1 – IPART approval of Construction Environmental Management Plan:

Kyeema Wastewater provided a copy of its *Construction Environmental Management Plan* (CEMP).⁹⁴ Review of the revision history indicated that:

- Version 1.0 dated 28 October 2020 had been prepared for issue to IPART for approval; and
- Version 2.0 dated 5 November 2020 had been amended following feedback from IPART and had been reissued to IPART for final approval.

In a letter dated 19 November 2020,⁹⁵ IPART advised that:

“IPART approves the CEMP (version 2 dated 5 November 2020).”

It is noted that the CEMP indicates that construction of the infrastructure was scheduled for the period December 2020 to March 2021. More specifically, the contract with Innoflow for supply and installation of the infrastructure is dated 10 January 2021, which indicates that construction did not commence prior to that date; this is consistent with advice provided by Kyeema Wastewater during the audit planning phase.

In response to specific follow-up enquiry, Kyeema Wastewater advised that the actual construction period was December 2020 to April 2021, as follows:⁹⁶

- Construction (dewatering and cleaning) of the wet weather storage dam commenced on 7 December 2020;
- Construction of the treatment plant by Innoflow commenced in early February 2021.

Furthermore, a *Certificate of Compliance*⁹⁷ in respect of the pressure sewer installation works indicate that this work commenced at the beginning of January 2021.

It is therefore apparent that construction of the infrastructure was not commenced until after IPART had approved the CEMP.

Clause 3.2 – Implementation of Construction Environmental Management Plan:

To assess whether construction of the infrastructure has been carried out in accordance with the approved CEMP, the auditor sought to confirm that a selection of mitigation measures and associated management activities had been undertaken. These include (or example):

- Action/mitigation measure 4.1.4 requires that:

“All construction workers shall be inducted into the requirements of the CEMP at the beginning of the construction activities, and when material changes have been made to this CEMP. Induction and training records shall be kept and maintained.”

⁹⁴ Nation Partners, *Kyeema Wastewater Pty Ltd; Construction Environmental Management Plan* (Version 2.0), 5 November 2020.

⁹⁵ Letter dated 19 November 2020 from IPART to Kyeema Wastewater (re: *Notification of approval – Construction Environmental Management Plan (CEMP) for Kyeema Wastewater Pty Ltd’s Gundaroo scheme*).

⁹⁶ Email dated 11 November 2021 from Kyeema Wastewater to Cobbitty Consulting (re: *Kyeema audit - Environmental Management*).

⁹⁷ *Certificate of Compliance for Plumbing and Drainage Work* dated 20 September 2021 (filename: *Sewer Mains Cert of Compliance signed copy Kyeema.pdf*).

The *CEMP Induction and Training Register* was sighted during the audit site inspection and a copy⁹⁸ provided as evidence.

Training requirements are identified in the CEMP.⁹⁹ Although there is no formally documented training material, it is understood that the CEMP document itself was used as the basis of discussion during training sessions, which is considered appropriate for the nature of the works to be undertaken and the number of personnel involved.

- Action/mitigation measure 4.2.1 requires that:

“An Erosion and Sediment Control Plan (ESCP) shall be prepared as part of the CEMP and maintained in accordance with relevant sections of Managing Urban Stormwater: Soils and Construction (known as ‘the Blue Book’) (Landcom, 2004), for all works involving excavation or ground disturbance.”

An *Erosion and Sediment Control Plan* was prepared and is included as an appendix to the CEMP.¹⁰⁰ This plan details requirements for waterway protection, including the construction of a diversion drain and the installation of silt fencing, silt socks and straw bale and stone silt traps, specifically in the area around the wet weather storage dam and treatment plant works.

Photographic evidence provided by Kyeema Wastewater demonstrated that (for example) silt fencing was in place during construction of the treatment plant (refer Figure A.9.1). Furthermore, the required measures remained in place at the time of the audit inspection, as illustrated by Figures A.9.2, A.9.3, A.9.4 and A.9.5

- Action/mitigation measures 4.2.4 and 4.3.4 require that:

“Areas subject to earthworks and construction disturbance would be stabilised through measures including revegetation as soon as practically possible following achievement of finished levels.”

As illustrated by Figures A.9.5 and A.9.6, grassing has been re-established in the vicinity of the treatment plant site and within the property development area where the pressure sewer collection system has been constructed.

- The CEMP sets out requirements in respect of environmental monitoring and reporting.¹⁰¹ Reporting requirements include:
 - completion of Site Inspection/Monitoring Checklists – copies of the *Weekly Environmental Inspection Checklist* for inspections undertaken on 11 December 2020, 1 February 2021, 22 February 2021 and 1 March 2021 were provided as examples;
 - maintenance of the *CEMP Induction and Training Register* – this was sighted/copy provided as reported above;
 - completion of Incident Report Forms and maintaining records of Complaints and community concerns, as required – Kyeema Wastewater advised that there had been no environment related incidents or complaints during construction of the infrastructure.¹⁰²

Based on observations, it is apparent that Kyeema Wastewater constructed the infrastructure in accordance with the arrangements detailed in the CEMP. Required mitigation measures were effectively implemented.

Recommendations

There are no recommendations in respect of this obligation.

⁹⁸ MS Excel workbook: *Appendix B - CEMP Induction and Training Register.xlsx*.

⁹⁹ Nation Partners, *Kyeema Wastewater Pty Ltd; Construction Environmental Management Plan* (Version 2.0), 5 November 2020, section 5.2.

¹⁰⁰ Nation Partners, *Kyeema Wastewater Pty Ltd; Construction Environmental Management Plan* (Version 2.0), 5 November 2020, appendix C.

¹⁰¹ Nation Partners, *Kyeema Wastewater Pty Ltd; Construction Environmental Management Plan* (Version 2.0), 5 November 2020, section 7.

¹⁰² Email dated 11 November 2021 from Kyeema Wastewater to Cobbitty Consulting (re: *Kyeema audit - Environmental Management*).

Opportunities for improvement

No opportunities for improvement have been identified in respect of this obligation.



Figure A.9.1 Treatment plant construction showing silt fencing (arrowed) in background.



Figure A.9.2 Treatment plant construction area showing line of one of the diversion drains (arrowed) in background.



Figure A.9.3 Waterway downstream of wet weather storage dam (located to the right). Shows silt socks along flow path and stone silt trap in background



Figure A.9.4 Construction area adjacent to wet weather storage dam (embankment at left) showing silt fencing to the left and silt socks in background.





Figure A.9.5 Construction area adjacent to treatment plant looking towards wet weather storage dam. Silt fencing (arrowed) in background; re-established grassing in foreground.



Figure A.9.6 Re-established (grassed) surface around property service connection box within road reserve.

Table A.10 New Infrastructure Audit Table – Network Operator’s Licence Sched B cl.2

Clause	Requirement	Compliance Grade
Network Operator’s Licence Sched B cl.2	[2.1] The Licensee must hold insurance that is appropriate for the size and nature of the activities that the Licence is carrying out under this Licence.	Clauses B2.1, B2.2 and B2.3:
	[2.2] The Licensee must provide a copy of each certificate of currency of the insurance maintained by the Licensee to IPART in accordance with the Reporting Manual.	
	[2.3] Before commencing to commercially operate the Specified Water Industry Infrastructure under this Licence, the Licensee must demonstrate that the insurance held is appropriate for the size and nature of those commercial operation activities, by providing a report to IPART from an Insurance Expert that:	Clauses B2.5 and B2.6:
	a) certifies that in the Insurance Expert’s opinion, the type, scope and limit of the insurance held by the Licensee is appropriate for the size and nature of those commercial operation activities; and b) is in the form prescribed by the Reporting Manual.	
	[2.4] [Not applicable]	
	[2.5] If, in relation to the activities authorised by this Licence, there is, or is to be, a change in either of the following, the Licensee must provide a report to IPART in accordance with the Reporting Manual:	
	(a) the insurer, or underwriting panel in respect of an insurance policy held by the Licensee; or (b) the type, scope or limit on the amount of insurance held by the Licensee.	
	[2.6] From time to time when requested in writing by IPART, the Licensee must provide a report to IPART, in the manner and form and within the timeframes specified by IPART, from an Insurance Expert certifying that in the Insurance Expert’s opinion, the type, scope and limit on the amount of insurance held by the Licensee is appropriate for the size and nature of the activities that the Licensee is carrying out under this Licence.	

Risk

This presents no significant risk to the operational safety of the scheme, however, may present commercial risk to the Licensee.

Target for Full Compliance

Evidence that the Licensee has:

- maintained insurance appropriate for the size and nature of the Licensed activities;
- provided copies of certificates of currency to IPART as required;
- provided a report from an Insurance Expert to IPART as required (prior to commencing commercial operation, in the event of changes to insurance cover or upon request); and
- notified IPART of any changes to the insurance cover.

Evidence sighted

- Interviews with Kyeema Wastewater representatives on 27 October 2021.
- PSC Insurance Brokers, *Kyeema Wastewater Pty Ltd; Report on Insurance Services* and covering letter dated 10 November 2021 (as amended 26 November 2021).
- IPART, *Network Operator's Reporting Manual* (Revision 11), 1 July 2020.
- Kyeema Wastewater, *Kyeema Wastewater Pty Ltd - Network Operator Licence Annual Report 2020-2021*, undated.
- Letter (reference D21/21987) dated 20 September 2021 from IPART to Kyeema Wastewater (re: *Non-compliances identified in Kyeema's 2021 annual return for licence number 20_044*).
- Email dated 14 November 2021 from Kyeema Wastewater to IPART (re: *Insurance Expert's Report*) and attached copy of the Insurance Expert's Report.

Summary of reasons for grade

Kyeema Wastewater demonstrated by the provision of an Insurance Expert's Report and insurance certificates of currency that, at the time of reporting, appropriate insurance arrangements are in place and at this stage continue to be maintained, as required pursuant to clause B2.1. It further demonstrated that it had provided both the insurance certificates of currency and the Insurance Expert's Report to IPART, consistent with the requirements of the *Reporting Manual*, as required pursuant to clauses B2.2 and B2.3 respectively.

There have been no changes to the insurance arrangements detailed in the Insurance Expert's Report; accordingly, there has been no requirement to report any such change to IPART pursuant to clause B2.5. Furthermore, IPART has not requested the provision of a further Insurance Expert's Report pursuant to clause B2.6, so there has again been no requirement to do so.

Kyeema Wastewater is therefore assessed to have demonstrated compliance with the obligations under clauses B2.1, B2.2 and B2.3; however, there has been no requirement to comply with clauses B2.5 or B2.6.

Discussion and notes

Clause B2.1 – Maintaining appropriate insurance:

Kyeema Wastewater provided a copy of an Insurance Expert's Report¹⁰³ in relation to:

“...the licensee's insurance arrangements in relation to activities authorised under the Network Operator's Licence Number 20_044 (Licence) granted to the licensee under Water Industry Competition Act 2006 (NSW) (Act). Those activities are the design, construction, maintenance and operation of sewerage and recycled (Non-potable) water infrastructure; the supply of sewerage services to residential customers at Kyeema Estate Gundaroo NSW.”

Insurance Expert's Report included certification that:

“PSC Insurance Brokers certifies to IPART that in its opinion, the Licensee's Insurance Arrangements are appropriate for the size and nature of the activities authorised under the Licence.”

Given that the insurance cover as assessed by the Insurance Expert remains in place at the time of reporting (certificates of currency included in the Insurance Expert's Report indicate that all policies are current), it is apparent that appropriate insurance is in place and at this stage continues to be maintained.

Clause B2.2 – Provision of insurance certificates of currency:

The *Reporting Manual* requires that insurance certificates of currency are provided to IPART:

- as evidence of policy in support of an Insurance Expert's Report, where required;¹⁰⁴ and
- in support of an annual declaration that appropriate insurance arrangements have been maintained, submitted in conjunction with an annual compliance report.¹⁰⁵

As reported above, Kyeema Wastewater demonstrated that it had submitted a copy of an Insurance Expert's Report, which included copies of the relevant insurance certificates of currency as required by the *Reporting Manual*, to IPART on 14 November 2021.

Insurance certificates of currency, and the periods of cover for which they are applicable, were provided in respect of the following:

- Professional Indemnity – 23 August 2021 to 23 August 2022;
- Public Liability – 23 August 2021 to 23 August 2022;
- Business (Property/Asset Protection) Insurance – 24 August 2021 to 24 August 2022;
- Construction Insurance – 30 August 2021 to 30 August 2022;
- Pollution/Environmental Liability -31 August 2021 to 31 August 2022;
- Management Liability – 1 November 2021 to 1 November 2022;
- Cyber Liability – 9 November 2021 to 9 November 2022; and
- NSW Workers Compensation – 18 August 2021 to 31 July 2022.

Kyeema Wastewater also demonstrated that it had provided copies of insurance certificates of currency to IPART as part of its *Annual Compliance Report*¹⁰⁶ for the 2020-2021 year. Although a non-compliance, which has subsequently been rectified, was reported and acknowledged by IPART,¹⁰⁷ Kyeema Wastewater is assessed to have demonstrated compliance for the purposes of this assessment.

¹⁰³ PSC Insurance Brokers, *Kyeema Wastewater Pty Ltd; Report on Insurance Services* and covering letter dated 10 November 2021 (as amended 26 November 2021).

¹⁰⁴ *Reporting Manual*, section 3.2 and appendix G.

¹⁰⁵ *Reporting Manual*, section 3.2.1 and appendix E.

¹⁰⁶ Kyeema Wastewater, *Kyeema Wastewater Pty Ltd - Network Operator Licence Annual Report 2020-2021*, undated.

¹⁰⁷ Letter (reference D21/21987) dated 20 September 2021 from IPART to Kyeema Wastewater (re: *Non-compliances identified in Kyeema's 2021 annual return for licence number 20_044*).

Clause B2.3 – Provision of Insurance Expert’s Report:

As reported above, Kyeema Wastewater demonstrated that it had provided an Insurance Expert’s Report to IPART on 14 November 2021;¹⁰⁸ and an amended report was subsequently provided on 26 November 2021. Although not reviewed in detail, the Insurance Expert’s Report appears to be in the required format, as prescribed in the *Reporting Manual*.¹⁰⁹

More specifically, the Insurance Expert’s Report:¹¹⁰

- indicated that it had been prepared as an assessment of the insurance arrangements in relation to activities authorised under the Licence;
- indicated that insurance policies in respect of the following were considered in undertaking the assessment:
 - Professional Indemnity;
 - Public Liability;
 - Business (Property/Asset Protection) Insurance;
 - Construction Insurance;
 - Pollution/Environmental Liability;
 - Management Liability;
 - Cyber Liability; and
 - Workers Compensation.
- included copies of each certificate of currency; and
- certified that:

“PSC Insurance Brokers certifies to IPART that in its opinion, the Licensee’s Insurance Arrangements are appropriate for the size and nature of the activities authorised under the Licence.”

and detailed the basis upon which the insurance expert had reached this opinion.

Clause B2.5 – Notification of changes to insurance arrangements:

Kyeema Wastewater confirmed that there has been no change to its insurance arrangements subsequent to submission of the most recent Insurance Expert’s Report, i.e. the report dated 10 November 2021 (as amended 26 November 2021). Given that the insurance cover as assessed by the Insurance Expert remains in place at the time of reporting, it is apparent that there has been no change to Kyeema Wastewater’s insurance arrangements in relation to the activities authorised under the Licence.

Accordingly, there has been no requirement to report any changes to IPART.

Clause B2.6 – Provision of Insurance Expert’s Report:

IPART has not, at the time of reporting, requested the provision of an Insurance Expert’s Report pursuant to clause B2.6 of the Licence. As reported above, an Insurance Expert’s Report dated 10 November 2021 was provided to IPART on 14 November 2021 and an amended report was provided on 26 November 2021.

Recommendations

There are no recommendations in respect of these obligations.

¹⁰⁸ Email dated 14 November 2021 from Kyeema Wastewater to IPART (re: *Insurance Expert’s Report*) and attached copy of the Insurance Expert’s Report.


¹⁰⁹ *Reporting Manual*, appendix G.

¹¹⁰ PSC Insurance Brokers, *Kyeema Wastewater Pty Ltd; Report on Insurance Services* and covering letter dated 10 November 2021 (as amended 26 November 2021).

Opportunities for improvement

No opportunities for improvement have been identified in respect of these obligations.

Table A.11 New Infrastructure Audit Table – Network Operator’s Licence Sched B cl.3

Clause	Requirement	Compliance Grade
Network Operator’s Licence Sched B cl.3	<p>The Licensee must carry out the activities authorised by the Licence in compliance with any requirements of NSW Health that:</p> <p>(a) IPART has agreed to; and</p> <p>(b) are notified from time to time to the Licensee by IPART in writing.</p>	 Compliant

Risk

This potentially presents high operational risk. Compliance with agreed requirements of NSW Health is essential to ensuring that the activities authorised by the Licence are carried out in a manner that ensures public health and safety.

Target for Full Compliance

Evidence that the Licensee is carrying out its authorised activities in compliance with any requirements of NSW Health with which IPART has notified the Licensee that it must comply.

Evidence sighted

- Interviews with Kyeema Wastewater representatives on 27 October 2021.
- Nation Partners, *Kyeema Wastewater Pty Ltd; Water Quality Plan* (Version 3.0), 7 December 2021.
- Decentralised Water Consulting, *Kyeema Subdivision: Sewage Management Plan* (Revision 3), 21 January 2019, as amended by Addendum 1 dated 9 June 2021, Addendum 2 dated 15 September 2021 and Addendum 3 dated 7 December 2021.
- Nation Partners, *Kyeema Wastewater Pty Ltd; Pollution and Incident Emergency Response Plan* (Version 1.0), 20 October 2021.
- Email dated 20 October 2021 from NSW Health to IPART (re: *Response to comment in WILMA*).

Summary of reasons for grade

Kyeema Wastewater demonstrated that it had addressed the requirements of NSW Health, which IPART had agreed to and notified it in writing. These requirements, which were notified to Kyeema Wastewater at the time that its Licence was granted (25 September 2020), outlined NSW Health’s expectations in respect of development of the *Water Quality Plan* and *Pollution Incident and Emergency Response Plan* (an Incident Notification Protocol). The requirement for these documents to be developed in consultation with NSW Health and other relevant stakeholders has been met, and their adequacy confirmed.

Accordingly, Kyeema Wastewater is assessed to have demonstrated compliance with this obligation.

Discussion and notes

NSW Health requirements as notified:

In a letter notifying Kyeema Wastewater of its determination of Licence applications (Network Operator and Retail Supplier) in respect of the proposed scheme, IPART advised (in part) that:

“Consultation with stakeholders

For the purposes of clause B3 of both licences, we have agreed to the following requirements of NSW Health (as defined in the licence) and are notifying you of those requirements:

-
- *Kyeema must develop an Incident Notification Protocol for incidents including, but not limited to, water quality issues, treatment plant critical control point limit exceedances, algae, recycled water issues, cross connections and contact details of all stakeholders involved in the scheme.*

You can contact the NSW Health Water Unit on (02) 9391 9835 or waterqual@dob.health.nsw.gov.au for the appropriate Public Health Unit officer's contact details.

We also note that Kyeema's water quality plans must specify how Kyeema has addressed and implemented the framework for managing recycled water quality as detailed in the Australian Guidelines for Water Recycling (AGWR). The water quality plans must be consistent with the AGWR. To achieve this, Kyeema needs to develop its water quality plans with the relevant stakeholders, including NSW Health."

In essence, Kyeema Wastewater was required to develop an Incident Notification Protocol and a Water Quality Plan that specifies how it has addressed the requirements of the *Australian Guidelines for Water Recycling (AGWR)*, and to do so in conjunction with the relevant stakeholders, including NSW Health.

Kyeema Wastewater engagement with NSW Health:

Kyeema Wastewater detailed the manner in which it had consulted/engaged with NSW Health, which can be summarised as follows, in both the *Water Quality Plan*¹¹¹ and the *Sewage Management Plan*.¹¹²

- A briefing to outline the risk assessment process and risk register, discuss the approach to developing critical control points, and discuss further consultation requirements was held between Kyeema Wastewater (Paul Carmody) and NSW Health (Tabitha Holliday and Leslie Jarvis) on 21 July 2021.
- A further risk assessment and critical control point "workshop" was held between Kyeema Wastewater (Paul Carmody) InnoFlow (Kevin Higham) and NSW Health (Tabitha Holliday and Leslie Jarvis) on 25 August 2021. The risk assessment/register, draft *Water Quality Plan*, *Pollution Incident and Emergency Response Plan*, copies of which had been provided to NSW Health for review prior to the meeting, were discussed with the aim of identifying any residual health and environmental risks and confirming the treatment system critical control points

Both the *Risk Register* and proposed critical control points were revised as a result of the "workshop". The updated versions are as documented in the *Water Quality Plan*,¹¹³ which it is understood was more broadly updated along with the *Pollution Incident and Emergency Response Plan*,¹¹⁴ the current versions of which were dated 14 September 2021 and 20 September 2021 respectively.

In comments provided by NSW Health in respect of the audit scope,¹¹⁵ it acknowledged the "workshop" (meeting) of 25 August 2021, noting that it had not been a typical risk workshop during which each risk is assessed individually). It did, however, further acknowledge that it had requested the adopted approach due to its availability constraints due to the COVID pandemic.

NSW Health noted its understanding that versions of the *Risk Register*, *Water Quality Plan* and *Pollution Incident and Emergency Response Plan* that had been updated in response to comments provided at the 25 August 2021 meeting would be provided for review prior to finalisation. It further indicated that, as it had not reviewed the updated documents having only recently received them (at the time of its comments), a review should be undertaken by the auditors (as part of this audit).

Assessment of the adequacy of the *Risk Register* (which is record of the risk assessment), the *Water Quality Plan* and the *Pollution Incident and Emergency Response Plan* has been undertaken by the auditors as part of the Licence Plan Audit¹¹⁶ undertaken in conjunction with this audit. Each of these documents /records was ultimately found to be adequate in meeting their respective requirements; it is noted that

¹¹¹ *Water Quality Plan*, section 3.2.3.

¹¹² *Sewage Management Plan*, section 6.2, as updated/amended by addendum 2.

¹¹³ *Water Quality Plan*, section 4.2 (critical control points) and appendix D (*Risk Register*).

¹¹⁴ Nation Partners, *Kyeema Wastewater Pty Ltd; Pollution and Incident Emergency Response Plan* (Version 1.0), 20 October 2021.

¹¹⁵ Email dated 20 October 2021 from NSW Health to IPART (re: *Response to comment in WILMA*).

¹¹⁶ Cobbitty Consulting/Water Futures, *Kyeema Wastewater; Licence Plan Audit* (Version 2.0), 8 December 2021.

the *Risk Register* and *Water Quality Plan* have again been updated in response to the initial findings of the Licence Plan Audit.

This indicates that Kyeema Wastewater engaged with NSW Health in developing both the *Water Quality Plan* and *Pollution Indecent and Emergency Response Plan*, thereby fulfilling NSW Health's requirements.

Engagement with other relevant Stakeholders:

Both the *Water Quality Plan*¹¹⁷ and the *Sewage Management Plan*¹¹⁸ indicate that Kyeema Wastewater engaged IPART and Innoflow (technical adviser to Kyeema Wastewater and an Authorised person under the Licence) in undertaking a preliminary risk assessment. This followed an initial screening level risk assessment undertaken as part of the initial project planning (documented in the *Sewage Management Plan*)¹¹⁹ and a subsequent review and refinement of the expected log reductions.

In response to the auditor's enquiry, Kyeema Wastewater advised¹²⁰ that it had provided a copy of the *Pollution Indecent and Emergency Response Plan* to Yass Valley Council, which is identified as the relevant agency for notification of incidents that are causing or threatening material harm to the environment. Kyeema Wastewater further advised that there had been no formal response; however, development approval (which was in part dependent on documentation of these arrangements) had been granted.

On this basis, it is considered that Kyeema Wastewater had engaged with relevant agencies other than NSW Health in developing both the *Water Quality Plan* and *Pollution Indecent and Emergency Response Plan*, again fulfilling NSW Health's requirements.

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this obligation.


¹¹⁷ *Water Quality Plan*, section 3.2.3.

¹¹⁸ *Sewage Management Plan*, section 6.2, as updated/amended by addendum 2.

¹¹⁹ Decentralised Water Consulting, *Kyeema Subdivision: Sewage Management Plan* (Revision 3), 21 January 2019, as amended by Addendum 1 dated 9 June 2021 and Addendum 2 dated 15 September 2021.

¹²⁰ Verbal advise only.

Table A.12 New Infrastructure Audit Table – Network Operator’s Licence Sched B cl.6

Clause	Requirement	Compliance Grade
Network Operator’s Licence Sched B cl.6	<p>The Licensee must notify IPART, and provide IPART with details, of any change in relation to the following, in accordance with the Reporting Manual, within 14 days of the change:</p> <p>a) [Not applicable]</p> <p>b) [Not applicable]</p> <p>c) [Not applicable]</p> <p>d) [Not applicable]</p> <p>e) the identity of each licensed retail supplier or public water utility that has access to infrastructure services provided by the Specified Water Industry Infrastructure for the purpose of providing sewerage services to its customers;</p> <p>f) any other sewerage infrastructure to which the Specified Water Industry Infrastructure is connected; and</p> <p>g) the arrangements for the disposal of waste from the water industry infrastructure specified in section 3, Table 3.2.</p>	 No Requirement

Risk

This presents a moderate risk. Notification to IPART is required so that it can assess the impact of the change on the safe operation of the specified water industry infrastructure.

Target for Full Compliance

If the Licensee has made any changes in respect of the provisions nominated under this obligation, it has provided the requisite notification to IPART.

Evidence sighted

- Interviews with Kyeema Wastewater representatives on 27 October 2021.
- Site inspection of infrastructure at Gundaroo on 27 October 2021.
- Nation Partners, *Infrastructure Operating Plan; Kyeema Wastewater Pty Ltd* (Version No: 2.0), 7 December 2021.
- Nation Partners, *Kyeema Wastewater Pty Ltd; Water Quality Plan* (Version 3.0), 7 December 2021.
- Decentralised Water Consulting, *Kyeema Subdivision: Sewage Management Plan* (Revision 3), 21 January 2019, as amended by Addendum 1 dated 9 June 2021, Addendum 2 dated 15 September 2021 and Addendum 3 dated 7 December 2021.

Summary of reasons for grade

Kyeema Wastewater has not made, nor does it currently plan to make, any changes in respect of the provisions nominated under this obligation. Accordingly, notification to IPART has not been required and a “No Requirement” compliance grade has been assigned in respect of this obligation.

Discussion and notes

Evidence was sought that Kyeema Wastewater had not made any changes in respect of the provisions nominated under this obligation or, if it had made any such changes, it had notified IPART within 14 days in accordance with the *Reporting Manual*.

Kyeema Wastewater advised that it has not, nor does it propose at this stage to make any changes in respect of the nominated provisions. No evidence to the contrary was identified as part of the Audit.

More specifically:

- Kyeema Wastewater remains the only Retail Supplier or Public Water Utility that has access to infrastructure services provided by the Specified Water Industry Infrastructure for the purpose of providing sewerage services to its customers;
- the Specified Water Industry Infrastructure is not connected any other sewerage infrastructure; and
- there has been no change to the arrangements for the disposal of waste from the infrastructure outlined in the *Sewage Management Plan*¹²¹ and *Infrastructure Operating Plan*.¹²²

Recommendations

There are no recommendations in respect of this obligation.

Opportunities for improvement

No opportunities for improvement have been identified in respect of this obligation.

¹²¹ *Sewage Management Plan*, appendix A (sections 5.4, 6.8 and 11.4).

¹²² *Infrastructure Operating Plan*, appendix A (page 22) and appendix F.

