Water Corporation

Memorandum of Understanding

Wastewater Services and Groundwater Replenishment

Abridged report - Summary of 2020 Audit

28 June 2021

Purpose

The Memorandum of Understanding (**MoU**) between the Department of Health (**the Department**) and the Water Corporation (**the Corporation**) for Wastewater Services and Groundwater Replenishment was first developed to support the Groundwater Replenishment Trial in 2010. The MoU has since been through 3 major revisions, with the most recent update being 30 November 2018.

Section 8.4 of the MoU states that the Department may audit the Corporation's systems and databases used to manage and report on its wastewater services and groundwater replenishment schemes "no more often than every three (3) years". The Department commissioned this audit to cover the period 1 July 2019 to 30 June 2020.

This report is an abridged version, which presents the purpose, scope and results, of the full report regarding the audit.

Scope

The audit was conducted in accordance with the Audit Objective and Scope Statement (refer to Appendix A), this report presents the results and conclusions of the assignment performed.

This report should be read in the context of the "Inherent Limitations" and "Restricted use" detailed on page 4 of this report.

Terms of Reference

The was conducted engagement by AAG on behalf of the Department and the Corporation in accordance with the requirements of the Objective and Scope Statement (refer to Appendix A) accepted by the Department's Managing Scientist Water and the Corporation's Head of Water Quality, and as set out below.

A. For those elements of this engagement where a determination of compliance was required, we conducted our work to provide limited assurance in accordance with Australian Standard on Assurance Engagements ASAE 3100 Compliance Engagements issued by the Auditing and Assurance Standards Board (**the Standard**).

B. For those elements of this engagement where an assessment of adequacy and effectiveness was required, the procedures we performed did not constitute an assurance engagement in accordance with Australian Standards for Assurance Engagements, nor did they represent any form of audit under Australian Standards on Auditing and consequently, no assurance conclusion or audit opinion is provided.

Results

Objective 1: Beenyup GRS (Stage 1) compliance with MoU and monitoring of aquifer after recharge

Through our examination of key documents, discussions with key stakeholders, examination of WWQMS, observations of related processes, procedures and operations, and sample testing, nothing came to our attention to indicate that the Corporation had not achieved the following results, in all material respects, during the period 1 July 2019 to 30 June 2020:

- Recycled Water Quality Parameters in Table 1 Binding Protocol 2 of the MoU accurately reflect the requirements specified by S499 Groundwater Replenishment Monitoring as endorsed by the Department
- Recycled Water Quality Management Plan Groundwater Replenishment Scheme (stage 1 – October 2017) accurately interprets and applies the combined requirements of the:
    - Framework of the Australian Guidelines for Water Recycling: Management Health and Environmental Risk (Phase1) as published in 2006; and
    - Recycled Water Quality Parameters in Table 1 Binding Protocol 2
- Beenyup AWRP Process Control Table (Stage 1) has identified Critical Control Points for each treatment train, with appropriate operating limits. Where monitoring exceeds specified limits appropriate response actions have been undertaken and any exceptions documented and reported in accordance with BP3A
- Water recharged into groundwater aquifers has complied with the recycled water parameters specified in Table 1 for BP2 and any exceptions have been documented and reported in accordance with the MoU
- WWQMS adequately and effectively manages and reports on the requirements within:

- S499 Groundwater Replenishment Monitoring; and
- S342 Groundwater Replenishment Water Sampling Guidelines

- Analytical methods and Limits of Reporting for Recycled Water Quality Parameters are reviewed annually and updated as required by Binding Protocol 4
- Analysis for metals is reported as required by Binding Protocol 5.

This audit identified five opportunities for the Corporation to further strengthen the effectiveness of its processes for demonstrating compliance with the MoU in relation to Beenyup GRS (Stage 1). Those opportunities were presented to management for consideration and action.

Objective 2: Wastewater Overflow Events (Metro Region) compliance with MoU and assess adequacy and effectiveness of WebEOC

Through our examination of key documents, discussions with key stakeholders, examination of WWQMS, WebEOC and Sentinel, observations of related processes, procedures and operations, and sample testing, nothing came to our attention to indicate that the Corporation had not achieved the following results, in all material respects, during the period 1 July 2019 to 30 June 2020:

- The requirements for responding to wastewater overflow events specified in Binding Protocol 3B of the MoU are:
  - Adequately reflected by the Corporate work instructions:
    - Managing and Responding to Health-Related Wastewater and Biosolids Events
    - Managing and Responding to Waste Discharge Events
  - Adhered to by the Corporation in regard to identification, reporting and response to wastewater overflow events
- WebEOC adequately and effectively:
  - Manages and reports on the requirements within the two Corporate work instructions listed above
  - Links to the Corporate risk management systems and Sentinel, and records overflow events as incidents as required.

This audit identified four opportunities for the Corporation to further strengthen the effectiveness of its processes for demonstrating compliance with the MoU in relation to Wastewater Overflow Events. Those opportunities were presented to management for consideration and action.

Note that two of those improvement opportunities are common to MoU obligations for Beenyup GRS (Stage 1) and Wastewater Overflow Events.

Objective 3: Adequacy and effectiveness of the 'Wastewater Quality Framework' employed by the Corporation's Water Quality Business Unit

Through our examination of key documents, discussions with key stakeholders, examination of WWQMS, observations of related processes, procedures and operations, and sample testing in relation to the Wastewater Quality Framework, we observed that the Corporation appears to have maintained effective mechanisms for managing its wastewater quality obligations through its Wastewater Quality Framework, including:

- Commitment to the 12 elements of the Wastewater Quality Framework outlined in the Recycled Water Quality Management Plan for the Beenyup Groundwater Replenishment Scheme
- Application of a risk prevention approach to recycled water quality management
- Maintenance of a resourced management structure and assigning responsibilities to qualified staff for managing wastewater quality
- Establishment and maintenance of processes and procedures that are designed to facilitate its compliance with the requirements of the MoU in relation to recycled water and wastewater overflows
- Continued support and enhancement of WWQMS which is designed to assist the Corporation in meeting its recycled water and wastewater obligations

- Continued demonstration of a strong commitment to monitoring and reporting on its compliance with the requirements of the MoU in relation to recycled water and wastewater
- Commitment to effective and timely communication with the Department
- Commitment to continued learning and improvement, as evidenced in several ongoing initiatives to continue to enhance the Corporation's recycled water quality management practices.

Each of the improvement opportunities referred to above, relating to Beenyup GRS (Stage 1) and Wastewater Overflow Events will further strengthen the Corporation's Wastewater Quality Framework.

Inherent limitations

- Because of the inherent limitations of an assurance engagement, together with the inherent limitation of any system of controls there is an unavoidable risk that fraud, error or non-compliance with the requirements of the MoU may occur and not be detected. We cannot, in practice, examine every activity and procedure, nor can we be a substitute for management's responsibility to maintain adequate controls over all levels of operations and its responsibility to prevent and detect irregularities, including fraud. Accordingly, readers of our reports should not rely on the report to identify all potential instances of procedural deficiencies, which may occur
- Our procedures were not designed to detect all weaknesses in control procedures as they were not performed continuously throughout the period and the tests performed are on a sample basis
- The matters raised in this report are only those which came to our attention during the course of performing our procedures and are not necessarily a comprehensive statement of all the weaknesses that exist or improvements that might be made
- Suggestions for improvement should be assessed by management for their full commercial impact before they are implemented
- Any projection of the evaluation of the control procedures to future periods is subject to the risk that the systems may become inadequate because of changes in conditions, or that the degree of compliance with them may deteriorate.

Restricted use

This report has been prepared for use by the Corporation for the purpose of the satisfying its reporting requirements of its memorandum of understanding with the Department. This report is not intended to be, and should not be, used by any other person or entity. No other person or entity is entitled to rely, in any manner, or for any purpose, on this report. We accept no duty, responsibility or liability to any party, other than the Corporation, in connection with the report or this engagement.

Appendix A – Objective and Scope Statement

Government of **Western Australia**
Department of **Health**
Public Health

Background

The Memorandum of Understanding (MoU) between the Department of Health and Water Corporation for Wastewater Services and Groundwater Replenishment was most recently reviewed and amended on the 30th of November 2018.

Section 8.4 of the MoU states that the Department may conduct an audit of the Corporation's systems and data bases used to manage and report on its wastewater services and groundwater replenishment schemes as required.

The scope of this MoU audit is proposed to cover the Beenyup Groundwater Replenishment Scheme (Stage 1) and wastewater overflow events.

1. Beenyup Groundwater Replenishment Scheme (GRS) (Stage 1)

   The recycled water quality requirements that the Water Corporation must achieve for Groundwater Replenishment (GWR) are set out in Binding Protocol 2 of the MOU. In addition Binding Protocol 2 defines the Recycled Water Quality Parameters and Recycled Water Quality Indicators that are to be used to verify operational performance

   Binding Protocol 1 of the MoU lists the Water Quality Management Policies, Guidelines, Standards, Processes and Procedures that enable the Water Corporation to demonstrate compliance with Binding Protocol 2 and any additional direction given by the Department of Health.

   The principle standards, processes and procedures used by the Water Corporation in regard to GRS (Stage 1) are:

   - Advanced Water Recycling Plant Process Control Tables (Stage 1)
   - GWR Recycled Water Quality Management Plan
   - S499 Groundwater Replenishment Monitoring
   - S342 Groundwater Replenishment (GWR) Water Sampling Guidelines; and
   - GWR Incident Management Plan (Stage 1)

   A computerised Wastewater Quality Management System (WWQMS) is used by the Water Corporation to apply the requirements prescribed by S499 Groundwater Replenishment Monitoring.

2. Wastewater Overflow Events (Metropolitan Region)

   The requirements that the Water Corporation must adhere to for responding to wastewater services events (including wastewater overflows) are set out in Binding Protocol 3B.

   Binding Protocol 1 of the MoU lists the Policies, Guidelines, Standards, Processes and Procedures that enable the Water Corporation to demonstrate compliance with Binding Protocol 3B and any additional direction given by the Department of Health.

   The principle water quality management processes and procedures used by the Water Corporation in regard to wastewater overflows are:

   - Managing and Responding to Health-Related Wastewater and Biosolids Events
   - Managing and Responding to Waste Discharge Events

   A computerised incident notification system (WebEOC) is used by the Corporation to capture details of wastewater overflow events and notify relevant internal and external stakeholders.

   A computerised incident management system (Sentinel) is used to record incidents and capture actions and event close outs.

   A computerised work management system (SAP PM) is used to record details of work orders related to wastewater conveyance overflows.

The audit report should include recommendations for improvements where appropriate.

The Chief Executive Officers shall endorse the audit report and timetable for improvements. The responsible officers (Director Environmental Health, Department of Health and Head of Water Quality, Water Corporation) shall provide regular progress reports.

Objectives

1. Beenyup Groundwater Replenishment Scheme (Stage 1)

   To determine whether:

   - Recycled Water Quality Parameters in Table 1 Binding Protocol 2 of the MoU accurately reflect the requirements specified by the:
     - S499 Groundwater Replenishment Monitoring as endorsed by the Department of Health; and
     - Any additional directions given by the Department of Health.
   - Recycled Water Quality Management Plan Groundwater Replenishment Scheme (Stage 1 – October 2017) accurately interprets and applies the combined requirements of the:
     - Framework of the Australian Guidelines for Water Recycling: Managing Health and Environmental Risk (Phase 1) as published in 2006;
     - Recycled Water Quality Parameters in Table 1 Binding Protocol 2 of the MoU,
     - any additional directions given by the Department of Health.
   - The Beenyup Advanced Water Recycling Plant Process Control Table (Stage 1) has identified critical control points:
     - that have been identified for each treatment train,
     - with appropriate operating limits; and where monitoring exceeds specified limits:
       - appropriate response actions have been undertaken; and
       - exceptions are appropriately documented and reported in accordance with Binding Protocol 3A of the MoU.
   - Water recharged into the groundwater aquifers has complied with:
     - The recycled water parameters specified in Table 1 for Binding Protocol 2 of the MoU; and that
     - Any exception has been appropriately documented and reported in accordance with the MoU.

   To assess the adequacy and effectiveness of the Wastewater Quality Management System (WWQMS) to Manage and report on the requirements within:

   - S499 Groundwater Replenishment Monitoring; and
   - S342 Groundwater Replenishment (GWR) Water Sampling Guidelines.

2. Wastewater Overflow Events (Metropolitan Region)

   To determine whether the requirements for responding to wastewater overflow events specified in Binding Protocol 3B of the MoU are:

   - adequately reflected by the Corporate work instructions:
     - Managing and Responding to Health-Related Wastewater and Biosolids Events
     - Managing and Responding to Waste Discharge Events
   - Adhered to by the Corporation in regard to identification, reporting and response to wastewater overflow events

   To assess the adequacy and effectiveness of WebEOC to:

   - Manage and report on the requirements within the Corporate work instructions, Managing and Responding to Health-Related Wastewater and Biosolids Events; and Managing and Responding to Waste Discharge Events,
   - Link to the Corporate risk management systems Sentinel and to record overflow events as incidents as required.

3. To assess the adequacy and effectiveness of the ‘Wastewater Quality Framework’, management framework employed by the Water Corporation’s Water Quality Business Unit.

Scope and Focus

The scope of the audit covers:

1 Beenyup Groundwater Replenishment Scheme (Stage 1)

- Recycled Water Quality Management Plans Groundwater Replenishment (Stage 1 – October 2017),
- "Groundwater Replenishment Monitoring", S499,
- "Groundwater replenishment (GWR) Water Sampling Guidelines", S342,
- Visit to the Beenyup Advanced Water Recycling Plant (AWRP Stage1),
- Testing transactions over the period, 1 July 2019 to 30 June 2020,
- Testing the reliability and integrity of Binding Protocol 3A reporting over the period, 1 July 2019 to 30 June 2020,
- The computerised Wastewater Quality Management System (WWQMS),
- The management framework (Wastewater Quality Framework) administering:
  - S499 Groundwater Replenishment Monitoring,
  - The Wastewater Quality Management System (WWQMS); and
  - Groundwater Replenishment (GWR) Water Sampling Guidelines S342,

  within the Water Corporation's Water Quality Business Unit.

The audit will test whether:

- Under the Recycled Water Quality Management Plan (Stage 1 – October 2017), S499 and Binding Protocol 1:
  - Sampling programs are consistent with the Recycled Water Quality Management Plan (Stage 1 – October 2017),
  - Samples are taken in accordance with the sampling programs,
  - Remedial actions are taken when samples exceed guidelines,
  - Sampling locations are appropriate,
  - Samples are handled correctly; and
  - Reporting is complete and accurate.
- Under Binding Protocol 3A:
  - Exception protocols are followed.
- The management framework administering:
  - Recycled water quality management performance is subjected to continual review,
  - Recycled water quality exceptions are adequately identified and evaluated,
  - Remedial plans are appropriate and timely,
  - Communication between the Water Quality Business Unit and Department of Health is adequate, and
  - The process for change-out of equipment assures that the physical integrity of the plant is maintained and that the AWRP continues to operate in accordance with the approved Process Control Table.
- The electronic governance structure at the Stage 1 Beenyup GRS operates to ensure that:
  - Advanced water treatment processes work within specified ranges for each of the Critical Control Points,
  - The data tolerances ensure that performance is accurately recorded in operational and governance reporting.
- Under Binding Protocol 4:
  - Analytical methods and Limits of Reporting (LORs) for the Recycled Water Quality Parameters are reviewed annually and all LORs are updated as required.
- Under Binding Protocol 5:
  - Analyses for metals are reported as stipulated.

2 Wastewater Overflow Events

- Managing and Responding to Health-Related Wastewater and Biosolids Events,
- Managing and Responding to Waste Discharge Events,
- Testing the reliability and integrity of Binding Protocol 3B reporting of wastewater overflow events for the Metropolitan Region over the period, 1 July 2019 to 30 June 2020,
- The computerised incident notification system (WebEOC),
- The computerised work management system (SAP PM),
- The computerised incident management system (Sentinel),
- The management framework (Wastewater Quality Framework) administering:
  - Managing and Responding to Health-Related Wastewater and Biosolids Events, and
  - Managing and Responding to Waste Discharge Events,

  within the Water Corporation's Water Quality Business Unit.

The audit will test whether:

- Under Binding Protocol 3B:
  - Wastewater overflows are identified and reported as required,
  - Wastewater overflows are followed up and actioned as required.