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INDEPENDENT ENVIRONMENTAL AUDIT

**Murrumbidgee to Googong Water Transfer 7th Audit (OEMP
Implementation)**

January 2021



DOCUMENT VERIFICATION

Project Title: Murrumbidgee to Googong Water Transfer 7th Audit (OEMP Implementation)

Project Number: 4625

Project File Name: M2G 2018-2020 audit 7 Final.docx

Revision	Date	Prepared by	Reviewed by	Approved by
Final	1/02/2021	Natascha Arens	Icon Water	Natascha Arens



W. www.nghconsulting.com.au

BEGA - ACT & SOUTH EAST NSW

Suite 11, 89-91 Auckland Street
(PO Box 470) Bega NSW 2550
T. (02) 6492 8333

BRISBANE

Suite 4, Level 5, 87 Wickham Terrace
Spring Hill QLD 4000
T. (07) 3129 7633

CANBERRA - NSW SE & ACT

Unit 8, 27 Yallourn Street
(PO Box 62) Fyshwick ACT 2609
T. (02) 6280 5053

GOLD COAST

19a Philippine Parade
(PO Box 466 Palm Beach QLD 4221)
Tugun QLD 4224 T. (07) 3129 7633

E. ngh@nghconsulting.com.au

NEWCASTLE - HUNTER & NORTH COAST

Unit 2, 54 Hudson Street
Hamilton NSW 2303
T. (02) 4929 2301

SYDNEY REGION

Unit 18, Level 3, 21 Mary Street
Surry Hills NSW 2010
T. (02) 8202 8333

WAGGA WAGGA - RIVERINA & WESTERN NSW

35 Kincaid Street (PO Box 5464)
Wagga Wagga NSW 2650
T. (02) 6971 9696

WODONGA

Unit 2, 83 Hume Street
(PO Box 506) Wodonga VIC 3690
T. (02) 6067 2533

NSW • ACT • QLD • VIC

W. www.nghconsulting.com.au

ABN 31 124 444 622 ACN 124 444 622

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ACRONYMS AND ABBREVIATIONS

ACWA	Action for Clean Water
EMS	Environmental Management System
GHG	Greenhouse Gas
LMWQCC	Lower Molongolo Water Quality Control Centre
M2G	Murrumbidgee to Googong
MEMP	Murrumbidgee Ecological Monitoring Program
NC	Non Compliant
ODP	Offset Delivery Plan
OEMP	Operational Environmental Management Plan
PAR	Post Approval Requirements
PV	Photovoltaic
WI	Work Instruction
WSSEP	Water Supply and Sewerage Emergency Plan
WTP	Water Treatment Plant

EXECUTIVE SUMMARY

The Murrumbidgee to Googong (M2G) Water Transfer (the 'scheme') is a major infrastructure project designed to support security of water supply in the Australian Capital Territory (ACT) and region. The scheme involves pumping water from the Murrumbidgee River at Angle Crossing in the ACT and transferring it via a 12 kilometre pipeline to Burra Creek (in NSW), where it flows a further 13km to the Googong Reservoir. The scheme has the capacity to transfer up to 100 ML of water per day.

Icon Water operates the M2G as well as around 6000km of other water infrastructure. Icon Water is responsible for collecting and storing water, treating and distributing water, collecting and treating sewage and discharging treated water in the ACT.

Icon Water has a series of integrated management system documents that support the management of all its water infrastructure including the M2G project. These are all explained in the Icon Water Environmental Management System Manual. The M2G OEMP and associated sub plans are a part of the EMS.

The audit scope for this audit is the implementation of Operational Environmental Management Plan (OEMP), the relevant subplans and relevant licence and project approval documents as well as the ongoing integration of the M2G environmental management framework with the broader Icon Water Environmental Management System.

This audit represents the seventh (7th) independent environmental audit conducted on the operational phase of the M2G Project. In July 2019 a decision was made by the Icon Water Executive to move the M2G water pipeline to 'Operational' mode to supplement the Canberra and Queanbeyan water storages. This was the first time that M2G was in operation mode, outside of standard operate to maintain activities.

The audit found that the M2G project is being managed in accordance with all necessary requirements detailed in the relevant plans including:

- OEMP (v5, May 2017)
- Stream Flow and Water Quality MP (v6.2, April 2018)
- Landscape Rehabilitation & Terrestrial Ecology MP (V5, March 2017)
- Aquatic Ecology Monitoring Plan (V4, October< 2017)
- Biodiversity Offsets Management Plan (Offset Delivery Plan) v2 (May 2017) and subplans

A review of the relevant components of the EMS found that the management of M2G Water Transfer Scheme is being brought under the umbrella of the overall Icon Water EMS.

No non compliances with any of the requirements of the plans were noted in this audit.

It was noted during the audit that the OEMP contains an old version of the Environmental Policy. It is recommended that the appendix is removed from the OEMP and a link to the Website inserted instead.

1. REPORT SUMMARY

1.1. Background to the project

The Murrumbidgee to Googong (M2G) Water Transfer (the 'scheme') is a major infrastructure project designed to support security of water supply in the Australian Capital Territory (ACT) and region. The scheme involves pumping water from the Murrumbidgee River at Angle Crossing in the ACT and transferring it via a 12 kilometre pipeline to Burra Creek (in NSW), where it flows a further 13km to the Googong Reservoir. The scheme has the capacity to transfer up to 100 ML of water per day.

Construction of the M2G pipeline commenced in January 2011 and was completed in September 2012. Depending on the climate conditions, rainfall, river flows and water demand, the M2G can be in one of three modes:

- Suspension: parts of the system may be decommissioned requiring lead time before start up. No water can be transferred.
- Standby: ready to run, all components in place and being operated routinely for maintenance purposes.
- Operating: operating and transferring to increase Googong reservoir storage levels.

Icon Water operates the M2G as well as around 6000km of other water infrastructure. Icon water is responsible for collecting and storing water, treating and distributing water, collecting and treating sewage and discharging treated water in the ACT.

1.2. Introduction

This audit represents the seventh (7th) independent environmental audit conducted on the operational phase of the Murrumbidgee to Googong Water Transfer (M2G) Project. Following the completion of construction in 2012, a twice-yearly audit program was implemented. During that time, it became apparent that the project was unlikely to run in an operational mode for some time. Therefore, at the completion of the first 2 years of operation, the audit program was altered such that an independent audit is conducted every 2 years.

In July 2019 a decision was made by the Icon Water Executive to move the M2G water pipeline to 'Operational' mode to supplement the Canberra and Queanbeyan water storages. This was the first time that M2G was in operation mode, outside of standard operate to maintain activities. From 2012 to July 2019 the project was in standby mode. From July 2019 to January 2020 the project was in 'Operational' mode but with no operational pumping. From February 2020 to August 2020 the project was in 'Operational' mode and 4.51 GL of water was transferred to Googong Reservoir.

1.3. Scope of Audit

The audit scope for this audit is the implementation of Operational Environmental Management Plan (OEMP), the relevant subplans and relevant licence and project approval documents. This represents the second audit against the revised management plans, which were approved by the regulators in mid-2015. The following plans were audited:

- OEMP (v5, May 2017)

- Stream Flow and Water Quality MP (v6.2, April 2018)
- Landscape Rehabilitation & Terrestrial Ecology MP (V5, March 2017)
- Aquatic Ecology Monitoring Plan (V4, October< 2017)
- Biodiversity Offsets Management Plan (Offset Delivery Plan) v2 (May 2017) and subplans

1.4. Summary of non compliances

No non compliances were raised during this audit.

1.5. Summary of recommendations for improvement

It was noted during the audit that the OEMP contains an old version of the Environmental Policy. It is recommended that the appendix is removed from the OEMP and a link to the Website inserted instead.

2. AUDIT PROCESS

Due to COVID restrictions the audit was undertaken by examining desktop information, supported with MS Teams meetings, email exchange and phone calls.

2.1 Opening Meeting

An opening meeting was held on the morning via MS Teams on the 12 January 2021. Present were Ben Bryant, Tim Chaseling and Michael Harrison. The scope of the audit was outlined to those present, as well as a general outline of how the audit will be conducted.

2.2 Closing Meeting

An online closing meeting was held with Ben Bryant on the afternoon of the 12 January 2021. It was explained that further document review offline would be required over the coming days.

2.3 Designated Follow-up

A follow-up of the audit findings will be managed by the Icon Water Environment and Sustainability Manager to verify the completion of all corrective actions.

2.4 Previous Environmental Audit

This audit followed-up previous non compliances and Observations of Concern (OOC's) raised at the previous environmental compliance audit (August 2018)

Table 2-1: Summary of Non Compliance raised in 2018 independent audit.

Details	Status	Comment
August 2018 Audit		
Section 6.8 of the OEMP requires that toolbox training packages are to include the OEMP and sub plans. It was noted at the audit that a specific toolbox called M2G environmental conditions had been prepared to meet this requirement but that this particular toolbox talk has not been delivered to all relevant staff.	Closed	Environmental compliance Toolbox training was delivered to relevant staff on 26/03/2019.

Table 2-2: Summary of Observations of Concern raised in 2018 independent audit.

Details	Status	Comment
August 2018 Audit		
1. Recommendations raised in Land Condition Assessment Checklist or the biennial external check of the site are not easily tracked as having been completed, and therefore there is potential that some actions raised could be missed.	Closed	The audit reviewed checklists and reports as detailed in Section 3.2.1 below. The factions raised in checklists are transferred to Form FO03.00h M2G Scope of works. For each scope of works document there is a corresponding completion report. Furthermore – for the offset site Icon Water have taken a considered and strategic approach to management of the site through the preparation of the “Williamsdale Property Management Plan 2019 – 2024” Further detail on this plan and how it fits with the overall management system for M2G and more broadly the Icon Water EMS is provided in Section 3.4 below
There were some issues with version control and/or inconsistencies in documentation including: <ul style="list-style-type: none"> Environmental policy – three different versions were found in various locations in the system (current controlled version) and on the internet (previous versions). 	Part Open	Current environmental policy is dated 11 October 2019, the policy was revised as a result of the 2019 External EMS audit. https://www.iconwater.com.au/~media/files/icon-water/environment/memp-documents/po3-environmental-management.pdf?la=en&hash=98BDBE15D160C79EC71ED581D784853D152020D0

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Details	Status	Comment
<ul style="list-style-type: none"> The version of the OEMP on the internet is Version 5 dated 30 May 2017 (previous version), the version of the OEMP on the intranet was Version 6 dated May 2018 (current controlled version). <p>Section of the Landscape Rehabilitation and Terrestrial Ecology Management Plan 3.2 refers to the monitoring requirements located in section 3.3 of the report. Section 3.3 does not include a monitoring regime.</p>		<p>It is noted that the OEMP still contains an old version of the Environmental Policy. It is recommended that the appendix is removed from the OEMP and a link to the Website inserted instead.</p> <p>Section of the Landscape Rehabilitation and Terrestrial Ecology Management Plan 3.2 has been rectified to amend this issue.</p>
<p>Form F0053.4d is not referenced in the SFWQMP and is not related to a procedure. Staff indicated that this form is completed at 4 weeks, 2 weeks and 1 week prior to pumping, however this requirement is not documented.</p>	Open	<p>Icon Water are currently updating the Environmental management system more broadly and this will be incorporated and/or the process updated.</p>

2.1. Compliance assessment criteria

This audit was undertaken with reference to the guidance document *Independent Audit – Post Approval Requirements (PAR) May 2020*. The PAR (May 2020) defines the compliance assessment criteria as detailed in the table below. It should be noted that the intent of this audit was not to test compliance with Conditions of Approval or commitments directly, as these requirements have since been integrated into environmental management plans, which have been approved by the various stakeholders, including the relevant regulators. The focus of this audit was to check the implementation of the relevant environmental management plans. Nonetheless the audit criteria below have been used to guide the audit findings.

Assessment	Criteria
Compliant (C)	Where the auditor has collected sufficient verifiable evidence to demonstrate that the intent and all elements of the requirement of the regulatory approval have been complied with within the scope of the audit.
Non-compliant (NC)	Where the auditor has collected sufficient verifiable evidence to demonstrate that the intent of one or more specific elements of the regulatory approval have not been complied with within the scope of the audit.
Not triggered (NT)	A regulatory approval requirement has an activation or timing trigger that had not been met at the time of the audit inspection, therefore a determination of compliance could not be made.
Note	A statement or fact, where no assessment of compliance is required.

3. DETAILS OF AUDIT FINDINGS – ENVIRONMENT

This section details the findings of the audit report. It focuses on findings requiring action as well as highlighting areas of compliance.

3.1. Previous Audits

Six previous audits on operational environmental compliance were conducted on 13th and 14th February 2013, the 29th August 2013, 7th February 2014, 26th August 2014, 24-25th August 2016 and 22-23 August 2018.

3.2. Site Inspection

As a site visit was not possible the audit team provided photos of the offset site. The photos were taken by Icon Water staff during a site visit on the 11 January 2021.



Figure 1: Three photos of the Williamsdale Biodiversity Offset site showing planting and maintenance works

3.2.1. Checklists and reporting

In lieu of a site visit a number of documents were reviewed to check that actions included in reporting and operational checklists are closed out. Reports reviewed included:

- M2G Biannual Offset reports for the following dates: Spring 2020- 2021, Autumn 2019-2020

The Biannual offset report is an internal document prepared based on an inspection undertaken by Catchment Protection and Land Management personnel. The reports detail offset property condition assessments conducted at 'The Angle' Tuggeranong Block 1675, ACT in compliance with the approved Murrumbidgee to Googong Water Transfer (M2G) Offset Delivery Plan (ODP).

The environmental condition of the property is assessed to inform adaptive management of the Seven Management Units on the offset property.

This report checks compliance with the offset plan and includes commentary on:

- Fencing
- Unauthorised access
- Exclusion of grazing stock
- Erosion
- *Swainsona recta* plots
- Revegetation
- Maintenance of plantings (watering of new plantings, tree guards, removal and replacement of dead plants, fertilising, weed prevention)
- Weed incursion
- Grazing of seedlings
- Biological control of St Johns Wort
- Presence of feral animals
- Kangaroo numbers and management requirements
- Fire access
- Transmission line clear zones

Issues raised in this report are actioned via a Scope of work document followed up with a completion report. The audit viewed the following documents to verify that actions raised in the M2G Biannual Offset reports were closed out. Reports included:

- Form FO03.00h M2G Biodiversity Offset Spring/Summer weed Control 19-20 – Scope of works (October 2019) and Completion report (13 December 2019)
- Form FO03.00h landscaping and vegetation management scope of works – Erosion Control and Ground ripping, Williamsdale, NSW Scope of Works (Sept 2019) and Completion Report (October 2019)

Murrumbidgee to Googong Pipeline Landscape Rehabilitation assessment reports were also reviewed including:

- 2018-2019 Spring
- 2019 – 2020 Autumn

- 2020- 2021 Spring

The purpose of these reports is to detail the findings of an environmental condition assessment of the Murrumbidgee to Googong Water Transfer (M2G) pipeline easement. A review of both reports during this audit found that minor issues were raised, all of which are seen to be standard maintenance issues and included matters such as incursion of weeds and minor erosion.

Completed M2G Operations checklist for environmental compliance (Form FO05.34.d) for:

- 3 December 2019
- 21 February 2020

The undertaking of these checklists and subsequent scope of works, shows compliance with the ongoing management requirements of the OEMP, for the M2G pipeline and the Williamsdale offset site.

3.3. General Management Framework (EMS)

Specific environmental management requirements for the M2G pipeline are documented in the OEMP and associated subplans. In addition to this, the company's Environmental Management System (EMS) is being used to control documents and implement outcomes

The EMS is externally certified as being in accordance with ISO14001:2015. An external surveillance audit of the EMS undertaken in September 2019. The audit was an integrated surveillance audit with reference to ISO 9001:2015, ISO 14001:2015 and AS/NZS 4801:2001. The audit found:

- Environmental aspects and impacts register (Enabler EN03.02.01) were well developed.
- There are no high environmental residual risk as risks are well managed and controlled. Risks from other utilities are taken into consideration for assessing the risk.
- All beneficial environmental aspects are assessed and reviewed.
- The environmental targets are related to business strategy.
- Environmental objectives and targets are documented in EN030101.

No non conformances were raised in this external audit.

Environmental Policy

A new Sustainability and Environment Policy was published in October 2019 setting out the Icon Water Executive and Board beliefs, commitments and expectations regarding sustainability and environmental management. The policy, in line with *Territory owned Corporations Act 1990*, requires that Icon Water considers sustainability and the environment in all investments.

The Policy was reviewed, and evidence was sought for the implementation of the intentions of the Policy. A review of the "Environmental Performance and effectiveness of the EMS report (August 2020) and interviews with Icon Water staff provided evidence that the Policy is being implemented. In relation to policy commitments the audit found the following:

- *to have a net positive impact, improve liveability and enhance the environment* - This is evidenced through waste reuse options for excavated material, a trial for reuse Waste treatment Plant solids, recovered sand and glass is used as pipe bedding material (Icon Water August 2020).

- *responsibility to manage our precious water resources, for now and generations to come* - Icon Water revised and simplified its Source Water Protection Strategy to better realise protection of raw water in catchments through a pragmatic combination of monitoring, risk assessment and stakeholder influence.
Participation in various catchment management forums and community events continued to encourage source water protection, as outlined under the 'stakeholder engagement' section of the paper.
Icon Water finalised the Googong Action for Clean Water (ACWA) plan (2018) in collaboration with ACT Parks and Conservation Service and community stakeholders. The plan identified erosion hotspots to attract future natural resource management grant funding to improve raw water quality in our drinking water catchments as well as broader environmental benefits. An addendum was released in August 2020 with revised analysis following the Orroral Valley fire impact to inform recovery resourcing (Icon Water August 2020).
- *Considering sustainability and the environment in all our investments* – Work Instruction WI03.00.01 – Sustainability assessment documents a process for considering sustainability in the planning phase of all capital investments. Related documents to rate and score the investment are Sustainability assessment categories and rating levels Enabler EN03.00.01.
- *Limiting our emissions profile and building resilience to address the climate emergency we face.* Energy Management initiatives include solar photovoltaic (PV) installations with 642kW of solar generation across LMWQCC, Cotter Dam and Stromlo WTP being brought online, commencement of a further solar array at LMWQCC and reanalysis of a potential installation at Googong WTP. This brought the total renewable energy portfolio to almost 4,000kW including renewable energy capacity from mini-hydro generation (as at August 2020). In addition, energy audits have been undertaken, a GHG emission target was endorsed, and implementation of other actions from energy audits.
- *Protecting biodiversity, ecosystems and resources for current and future generations.* This is demonstrated via the management actions at the biodiversity offset site, ongoing ecological monitoring programmes and the Macquarie Perch spawning management project.
- *learning from the wealth of knowledge that already exists, including from First Nations People and our water industry peers.* Icon Water actively engages with its regulators and stakeholders, and partners with universities and industry through membership of the Water Services Association of Australia (WSAA) and Water Research Australia (WaterRA). Personnel participate in various networks and projects to improve knowledge and manage expectations and capabilities related to sustainability and environmental initiatives.

3.4. Operational Environmental Management Plan

The current version of the OEMP Version 5 dated 30 May 2017 is underpinned by a number of subplans including:

- Stream Flow and Water Quality Management Plan
- Aquatic Ecology Monitoring Plan
- Landscape Rehabilitation and Terrestrial Ecology Management Plan
- Offset Delivery Plan

Compliance and implementation of these plans is presented in Sections 3.5 - 3.8 below.

3.4.1. Broader – Icon Water Wide Systems

Commitment to sustainability and environmental management

A review of documentation shows that Icon Water has a strong commitment to sustainability and a strong system for environmental management. This is evidenced through:

- Sustainability and Environment Policy published in October 2019
- IS 14001:2015 accredited EMS

Furthermore, the EMS manual references a comprehensive series of procedures, work instructions, forms and enablers including

IMS procedures

- PR01.01 Induction
- PR06.03 Customer service and complaints
- PR07.03 Emergency and continuity management
- PR08.01 Compliance with legal and other obligations
- PR11.02 Internal audit
- PR11.03 Creating and maintaining IMS documents
- PR11.05 ACT Government, legislative assembly and shareholder communications
- PR11.07 Corrective actions
- PR11.09 Managing asset records

IMS work instructions

- WI01.01.01 Contractor induction to Icon Water Sites
- WI03.00.01 Sustainability assessment
- WI03.00.02 Working in or on waterways under a generic waterways work licence in the ACT
- WI03.00.03 Environmental incident response and notification
- WI03.00.04 Use of ACT Government mapping data for environment and planning matters
- WI03.00.05 Use of ACT Government contaminated sites data
- WI03.00.06 Unanticipated discovery: Heritage, human remains and contamination
- WI03.00.07 Managing pillar fire hydrants
- WI03.01.01 Operational controls (14001)
- WI03.01.02 Checking, monitoring and measurement, evaluation of compliance
- WI03.01.03 Establish environment and planning context
- WI03.01.04 Determine environment and planning approvals
- WI03.01.05 Vegetation management
- WI03.01.06 Vehicle wash down, outboard motor use and EHN virus prevention
- WI03.01.07 Excavated material handling, reuse and disposal
- WI03.01.08 Management of bio-solids at LMWQCC
- WI03.01.09 Management of storage dam waste at LMWQCC
- WI03.01.10 [Environmental aspects and impacts](#)
- WI03.01.11 Environmental management
- WI06.00.04 Internal communications
- WI06.00.07 Website and intranet updates
- WI11.02.02 Prioritisation of internal audit recommendations
- WI11.03.01 Communicating new or major amendments to IMS policies and procedures

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- WI11.05.01 Types of ACT Government, Legislative Assembly and shareholder communications

IMS forms

- FO01.01k Stage two induction checklist
- FO03.00a Sustainability scorecards
- FO03.00b Environmental incident notification template
- FO03.00f Request for quotation for Landscaping and vegetation management panel
- FO03.00g Order form for Landscaping and vegetation management panel
- FO03.00h Landscaping and vegetation management scope of works
- FO03.00i Environmental works completion report
- FO03.00j ACT EPA sewage overflow report
- FO03.01a Vehicle wash-down check sheet
- FO03.01b Excavated material tracking log sheet
- FO03.01d M2G Property condition assessment checklist
- FO03.01e Environmental inspection of biosolids stockpiles
- FO03.01f Stockpiling spoil checklist
- FO03.01g Bio-solids stockpile formation treatment process record
- FO03.01h Bio-solids stockpile inspection monitoring record
- FO03.01i Bio-solids stockpile removal record
- FO03.02a Field environmental assessment
- Form FO05.34.d M2G Operations checklist for environmental compliance
-
- FO10.03q Evaluation of contractor environmental procedures

IMS enablers

- EN03.00.01 Sustainability assessment categories and rating levels
- EN03.00.04 Operational environmental management plan register
- EN03.00.10 Environmental work method statement for working in or near natural environment
- EN03.01.01 Environmental management objectives and targets
- EN03.02.01 Environmental aspects and impacts register
- EN06.00.19 Community consultative forum terms of reference
- EN07.03.03 Water supply and sewerage emergency plan
- EN11.00.18 Murrumbidgee to Googong Water transfer environment reference group – Terms of reference
- EN11.00.17 Executive Committee - IMS EN11.02.03 Internal audit program 2017-18
- EN11.02.05 Internal audit strategy 2017-18 to 2019-20

This audit tested the implementation of some of these forms and work instructions including through a review of documentation relevant to M2G including:

- FO03.00b Environmental incident notification template (*Burra Creek Incident 31 July and 2 August 2020*)
- WI03.00.03 Environmental incident response and notification (*Burra Creek Incident 31 July and 2 August 2020*)
- FO03.00b Environmental incident notification template (*Burra Creek Incident 31 July and 2 August 2020*)

- FO03.00h Landscaping and vegetation management scope of works (*M2G Biodiversity Offset Spring/Summer weed Control 19-20 – Scope of works (October 2019) and Completion report (13 December 2019)*)
- FO03.00i Environmental works completion report (Completion reports for October and December 2019)
- FO03.01d M2G Property condition assessment checklist
- FO05.34.d M2G Operations checklist for environmental compliance (*3 December 2019; 21 February 2020*)

Water Supply and Sewerage Response Plan

In accordance with the Utilities (Emergency Planning Code) Determination 2011 (ACT) (the Code), Icon Water is to test the Water Supply and Sewerage Emergency Plan (WSSEP) at least annually.

Interviews with Icon Water Legal and Governance Group staff Ben Bryan (Manager Environment and Sustainability) and Tim Chaseling (Team Leader, Catchment Protection and Land Management), indicated that in the past two years WSSEP has not been needed to be tested as it has been used in real life situations including:

- 2019 Bushfires
- 2020 COVID

The main points to note with regard to implementation of the WSSEP was the value in having an incident management team that was formed early in the process and that this was the central stage for emergency co-ordination.

Performance Objectives

A review of the project's objectives and targets was undertaken during the audit. The Project objectives are listed in Table 1 of the OEMP v5 (May 2017). In summary, the following conclusions were drawn:

- Objective 1 – This is being met through the implementation of the OEMP, sub plans and EMS. Although some inconsistencies in version control were noted.
- Objective 2 – The aquatic ecology and water quality baseline data have been reviewed and new targets established in approved plans. Ecological and water quality monitoring is occurring as evidenced via the Murrumbidgee Ecological Monitoring Program. (MEMP) prepared by GHD. Reports have been prepped for this audit period including for Autumn 2018 – Sentinel report, Autumn 2019, Spring 2019 and Autumn 2020.
- Objective 3 – This is being met through the OEMP and Water Quality and Streamflow Management Plan. Specific measures include the geomorphology monitoring program. Biannual Geomorphology Assessments are undertaken by GHD. The latest report (GHD 2020) found no obvious erosion in Burra Creek associated with the operation of M2G.
- Objective 4 - This is being met through the implementation of the landscape rehabilitation program and the offset management program. The audit noted that pipeline and offset site inspections are occurring as detailed in Section 3.2.1 above. It is also noted that since the 2018 independent audit a strategic approach has been taken for the management of the offset site through the preparation and implementation of the Williamsdale Property Management Plan 2019 – 2024.

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- Objective 5 – This is being met through the planning and undertaking of maintenance work. Specific measures in place include geomorphology monitoring in relation to potential impacts on London bridge.
- Objective 6 – This is being met through the implementation of the complaints handling processes. One complaint was recorded in relation to one of the property owners along the easement. The complaint was in relation to soil condition along a section of the easement and its ability to support pasture growth. Negotiations are ongoing.
- Objective 7 – This is being met through the implementation of the OEMP and other sub plans.
- Objective 8 – This is being met through the implementation of the offset plan.

Governance

Environmental Reference Group

The terms and conditions of the ERG was updated in 2016 to reflect the stage of works. General communication is via the information available on the website regarding updated plans etc. The terms require that the ERG is notified when M2G is in OPERATION mode. A yearly ERG meeting is required under the Terms and Conditions. The 2020 meeting was replaced with the operational update and the next meeting is scheduled for later in 2021.

The M2G was operated intermittently for a total of 100 days between 27 February and 8 August 2020. The pumps were only operated when the Murrumbidgee River flow volume and water quality parameters in the Murrumbidgee River and Burra Creek met the conditions specified in the M2G Streamflow and Water Quality Management Plan (SWQMP).

In late February 2020, the high flows in the Murrumbidgee River post the Black Summer fires resulted in water quality outside of Icon Water's internal parameters and pumping was delayed for several weeks until conditions stabilised to acceptable levels.

An average volume of 45.39 ML was transferred per day. A total volume of 4.51 GL of water was transferred.

The ERG was notified of the operational phase runs via the M2G update to regulators October 2020 which was sent to:

- Commonwealth Department of Agriculture Water and the Environment
- NSW Environment Protection Authority
- NSW Department of Planning, Industry and Environment
- ACT Environment Protection Authority

Community information and reporting

At the time of the audit all relevant monitoring, environmental management and reporting data was current and available on the website.

At the time of the audit there was only 1 landholder that had not agreed to take over management responsibilities following the 5 year rehabilitation period. It was noted at the audit, that one easement within a property is likely to be managed in perpetuity by Icon Water. One further property easement is also being managed in perpetuity.

Auditing

Auditing of the OEMP is undertaken as part of the annual management review. The most recent management review is documented in the Environmental performance and effectiveness of the

environmental management system report (20 August 2020). An external surveillance audit of the EMS undertaken in September 2019 and found no non conformances.

Training

Icon Water implements a business-wide induction package which includes an environmental induction package (August 2018). Induction training was noted for two new consultants working on the offset site and for a consultant undertaking the Murrumbidgee Ecological Monitoring Program. (MEMP). Records for the 6/11/19 and the 1/8/2020 were reviewed during the audit.

3.5. Landscape Rehabilitation and Terrestrial Ecology Management Plan

Interviews with staff Ben Bryant indicate that the 5 year rehabilitation and monitoring of private property was completed in August 2016 and therefore the implementation of this plan is no longer relevant. It is noted that there are on going issues on one property in relation to soil condition along the easement on that property and its ability to support pasture. This complaint is being handled through the Icon Water complaint system and is still being negotiated.

It is noted that ongoing pipeline inspections are occurring as evidenced through a review of the Murrumbidgee to Googong Pipeline Landscape Rehabilitation assessment reports 2018-2019 Spring.

- 2019 – 2020 Autumn
- 2020- 2021 Spring

The purpose of these reports is to detail the findings of an environmental condition assessment of the Murrumbidgee to Googong Water Transfer (M2G) pipeline easement. A review of both reports during this audit found that minor issues were raised, all of which are seen to be standard maintenance issues and included matters such as incursion of weeds and minor erosion.

Completed M2G Operations checklist for environmental compliance (Form FO05.34.d) for:

- 3 December 2019
- 21 February 2020

3.6. Water quality and streamflow monitoring plan

Form F0053.4d is the mechanism that ensures the streamflow and water quality parameters are met prior to prior to operation or operate to maintain. The audit reviewed the checklist for the for the scheduled pump date on the 21 February 2020. The check found that all requirements in the checklist were met.

There is an online portal that shows all the monitoring points for M2G (as well as other Icon Water sites). The portal shows streamflow and other water quality parameters. Any decision to operate requires that either this data or the SCADA is checked prior to operation. A check of the data at the time of the audit showed that Flow at U/S Angle Crossing on 21/02/20 was 520 ML/d. Baseflow protection rule is 24.1 ML/d during February Therefore, the data meets the requirements to pump in August on this day. Downstream requirements to ensure that the Burra Creek is not flooded were also met.

Water quality monitoring is also undertaken biannually by GHD. Murrumbidgee Ecological Monitoring Program (MEMP) reports have prepared by GHD. Reports prepared for this audit period including for Autumn 2018 – Sentinel report, Autumn 2019, Spring 2019 and Autumn 2020.

3.7. Aquatic Ecology Monitoring Plan

Prior to the latest version of the Aquatic Ecology Monitoring Plan, Jacobs were commissioned by Icon Water to review the plans and monitoring requirements (as the pipeline had not been in operation at all) (Jacobs 2014). This version of the plan (Vers 4.1 October 2017) introduces sentinel monitoring, which accommodates reduced monitoring for the sentinel period (non operational periods).

Regular four yearly monitoring of Carp Eggs ceased in 2014. However, in response to the discovery a dead carp *Cyprinus carpio* on the 21/06/2018 in the M2G fish egg filter drums, a survey for Carp was commissioned by Icon Water (Institute of Applied Ecology 2019). The aim of the survey was to confirm that there are no Carp present in Burra Creek as this was one of the primary concerns (i.e. the introduction of alien species into Burra Creek and Googong reservoir) and identified as a key threatening process in the EIS.

Electrofishing failed to record any Carp in either Burra Creek or Googong reservoir, but concurrent eDNA sampling did record the presence of Carp eDNA in the headwaters of Googong Reservoir (Institute for Applied Ecology 2019). The contrasting results of the two survey types may be explained by one of the following factors:

- 1) Carp were present, but in too low abundance to be detected by the electrofishing effort applied.
- 2) Some form of eDNA contamination
 - a. Residual eDNA in the water from earlier pumping of water from the Murrumbidgee River to Burra Creek.
 - b. Contamination of eDNA samples through the process of collection or processing (unlikely based on the number of samples where carp eDNA was detected at the site, and the stringent protocols used by the eDNA team to eliminate contamination).

Further to the above monitoring Fish monitoring is also occurring at ten locations in the Murrumbidgee Catchment (ACT Govt 2019). The latest fish survey was undertaken in 2018 and key findings this survey are:

- Expansion of the pest species Redfin above Tharwa Sandwash
- Good numbers of juvenile Murray Cod recorded in the upper ACT Sites - Point Hut, Tharwa Sandwash & Angle Crossing and in NSW above the ACT
- Lower numbers and reduced distribution of Golden Perch

3.8. Offset Delivery Plan

The Offset Delivery Plan and its subplans are high-level guidance documents to assist Icon Water in managing the offset site under its obligations and provides baseline data on the offset site for future comparison. The documents do not specifically provide actions or dictate activities. This is done through a monitoring and inspection regime, which includes 2-yearly monitoring by ELA and internal six monthly inspections by E&S staff.

The audit found that six monthly inspections are being undertaken internally as evidenced by a review of the M2G Biannual Offset reports for the following dates: Spring 2020- 2021, Autumn

2019-2020. The findings of these reports are then transferred to a scope of work document and then reviewed for completion in a Completion report. This in accordance with the process set out in the Icon water EMS manual.

It is further noted that an updated management plan has been prepared for the offset site “Williamsdale Property Management Plan 2019 – 2024”.

Two yearly external monitoring of the offset site continues to be undertaken by Ecological Australia (ELA). Two monitoring events were noted in this audit reporting period including:

- M2G Biodiversity Offset Monitoring Report Spring 2018 (ELA Jan 2019)
- M2G Biodiversity Offset Monitoring Report Spring 2020 (ELA 2020)

The findings of the 2020 report included:

- The offset site is in moderate to good condition.
- High diversity of native vegetation (species and cover) resulting from favourable climatic conditions and reduced grazing by kangaroos following the 2019-2020 control program.
- Grazing pressure is likely at the lowest level in the history of the monitoring program.
- Reduced grazing and good climatic conditions have also contributed to high cover of exotic annuals such as clover, and as such, some weed control is required, especially for Saffron Thistle infestations.
- Threatened flora species were present, and the good conditions have likely also contributed to a reasonable diversity of birds on the site.
- Feral animal sightings were lower than in previous years, and areas of erosion are stabilising successfully.

3.9. Licencing

The project holds a licence issued in 2011 under the Pipelines Act 1967 (NSW). The licence conditions include pressure test and water quality sampling.

Googong water treatment plant holds an EPL:

Environment Protection Licence No. 5427

Licensee: ACTEW Corporation

Premises: Googong Water Treatment Plant
via Old Cooma Road
Queanbeyan NSW 2620

The last reporting for the EPL was in December 2020 and has been posted to the website in accordance with the EPL conditions. One exceedance of pH was recorded due to very low flows and the presence of algae.

4. CONCLUSION

The audit found that the M2G Water Transfer Scheme is being managed in accordance with all necessary requirements detailed in the relevant plans including:

- OEMP (v5, May 2017)
- Stream Flow and Water Quality MP (v6.2, April 2018)
- Landscape Rehabilitation & Terrestrial Ecology MP (V5, March 2017)
- Aquatic Ecology Monitoring Plan (V4, October< 2017)
- Biodiversity Offsets Management Plan (Offset Delivery Plan) v2 (May 2017) and subplans

A review of the relevant components of the EMS found that the management of M2G Water Transfer Scheme is being brought under the umbrella of the overall Icon Water EMS.

No non compliances with any of the requirements of the plans were noted in this audit.

5. REFERENCES

Alluvium 2018 Googong Dam Catchment Actions for Clean Water Plan

Conservation Research - Environment Planning and Sustainable Development Directorate ACT Govt. (Authors: Matt Beitzel, Mark Jakobsons, Zohara Lucas & Lisa Evans) 2019 Fish Monitoring of the Murrumbidgee River

EcoLogical (2019)

GHD Autumn 2019 Murrumbidgee Ecological Monitoring Program Observation Report

GHD Autumn 2020 Murrumbidgee Ecological Monitoring Program Observation Report HD Spring 2019 Murrumbidgee Ecological Monitoring Program Observation Report

Icon Water (April 2018) Stream Flow and Water Quality MP (v6.2)

Icon Water (March 2017) Landscape Rehabilitation & Terrestrial Ecology MP (V5)

Icon Water (May 2017) Operational Environmental Management Plan

Icon Water (2018 – 2021) Murrumbidgee to Googong Pipeline Landscape Rehabilitation assessment reports

Icon Water (May 2017) Biodiversity Offsets Management Plan (Offset Delivery Plan) v2

Icon Water (October 2017) Aquatic Ecology Monitoring Plan (V4)

Icon water 2019 Sustainability and Environment Policy

Icon Water Autumn 2019-2020 M2G Biannual Offset reports for the following dates:

Icon Water July 2020 Sustainability assessment categories and rating levels Enabler En03.00.01

Icon Water Spring 2020 – 2021 M2G Biannual Offset reports for the following dates: Spring 2020-2021

Institute for applied ecology (2019) Electrofishing Survey of Burra Creek and Googong Reservoir for the presence of Carp 2019

Institute for applied ecology (2019) Environmental DNA detection of Carp in the Burra Creek and Burra arm of the Googong Reservoir