

Boundary Creek, Big Swamp and Surrounding Environment – Remediation and Environmental Protection Plan

QUARTERLY UPDATE

1 January to 31 March 2023

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Introduction

In June 2017, Barwon Water acknowledged that the historic management of periodic groundwater pumping activities at the Barwon Downs borefield between 1982 and 2016 had resulted in water level decline and depressurisation of the Lower Tertiary Aquifer (LTA), which in turn was the primary cause of a reduction in groundwater contribution to the lower reaches of Boundary Creek (i.e. baseflow), that helped sustain streamflows during dry periods. When combined with other stressors, such as the modification of the creek, drought conditions and insufficient flows being passed through the private on-stream dam located on Boundary Creek, the overall reduction in streamflow led to a range of unintended consequences such as the drying out of Big Swamp, the oxidation of naturally occurring acid sulfate soils and the subsequent decline in water quality within Big Swamp and the lower reaches of Boundary Creek.

In May 2018, Barwon Water established the community and stakeholder Remediation Working Group to participate in the design and development of a remediation plan for Boundary Creek and Big Swamp. As part of this process, Barwon Water invited the working group to nominate their own technical experts to help support them in their discussions to shape the remediation plan.

In September 2018, Barwon Water's commitment to undertake remedial works was legally strengthened through the issuing of a Ministerial Notice under section 78 of the Water Act, 1989. This notice mandated the development and implementation of the Boundary Creek, Big Swamp and Surrounding Environment – Remediation and Environmental Protection Plan (REPP), which was subsequently approved by Southern Rural Water in February 2020. The objectives of the REPP are twofold:

- **The Boundary Creek and Big Swamp Remediation Plan** That outlines the controls and actions that could be practicably carried out to remediate the confirmed area of impact within the Boundary Creek catchment (i.e. where measurable and evidence based scientific methodologies conclude that the historical management of groundwater pumping activities at the Barwon Downs borefield resulted in environmentally significant adverse impacts); and
- **The Surrounding Environment Investigation** to investigate whether other areas within the regional groundwater system have been impacted by historical management of groundwater extraction activities at the Barwon Downs borefield.

A key requirement of the section 78 notice and the REPP is the provision of quarterly updates to Southern Rural Water to report on progress with implementation of the plan, as well as an Annual Report. The section 78 notice also stipulates that the Annual Report is required to be submitted to Southern Rural Water for review and comment before being made publicly available by 30 September each year.

This quarterly update is the twelfth since the REPP was implemented on 1 March 2020 and provides a high-level update on progress against the actions and timeframes outlined in the REPP between 1 January and 31 March 2023.

In addition to the information contained in the quarterly updates, the Annual Report, released on the 30th of September each year, provides more detail on technical investigations, monitoring, data collected, and tracking against the success targets outlined in the Boundary Creek and Big Swamp Remediation Plan.

Implementation of the REPP

In accordance with the REPP, Barwon Water have adopted an adaptive management approach, whereby the REPP can be adapted in response to the current 'state of knowledge'. This approach allows Barwon Water to evaluate how the confirmed areas of impact and the surrounding environment are responding to the adopted remedial actions and take further action, such as implementation of contingency measures, if and when required. This approach also ensures that the adopted remedial actions continue to meet the vision, objectives and targets as informed by the community and stakeholder Remediation Reference Group (RRG) and their nominated experts.

To help address the requirements of the section 78 notice and ensure momentum was maintained, a number of key milestones and actions were established. In line with the adaptive management approach, these continue to be updated, as required, to account for the current 'state of knowledge' and to capture any additional actions that Barwon Water have committed to since the implementation of the REPP in March 2020 (refer Figure 1).

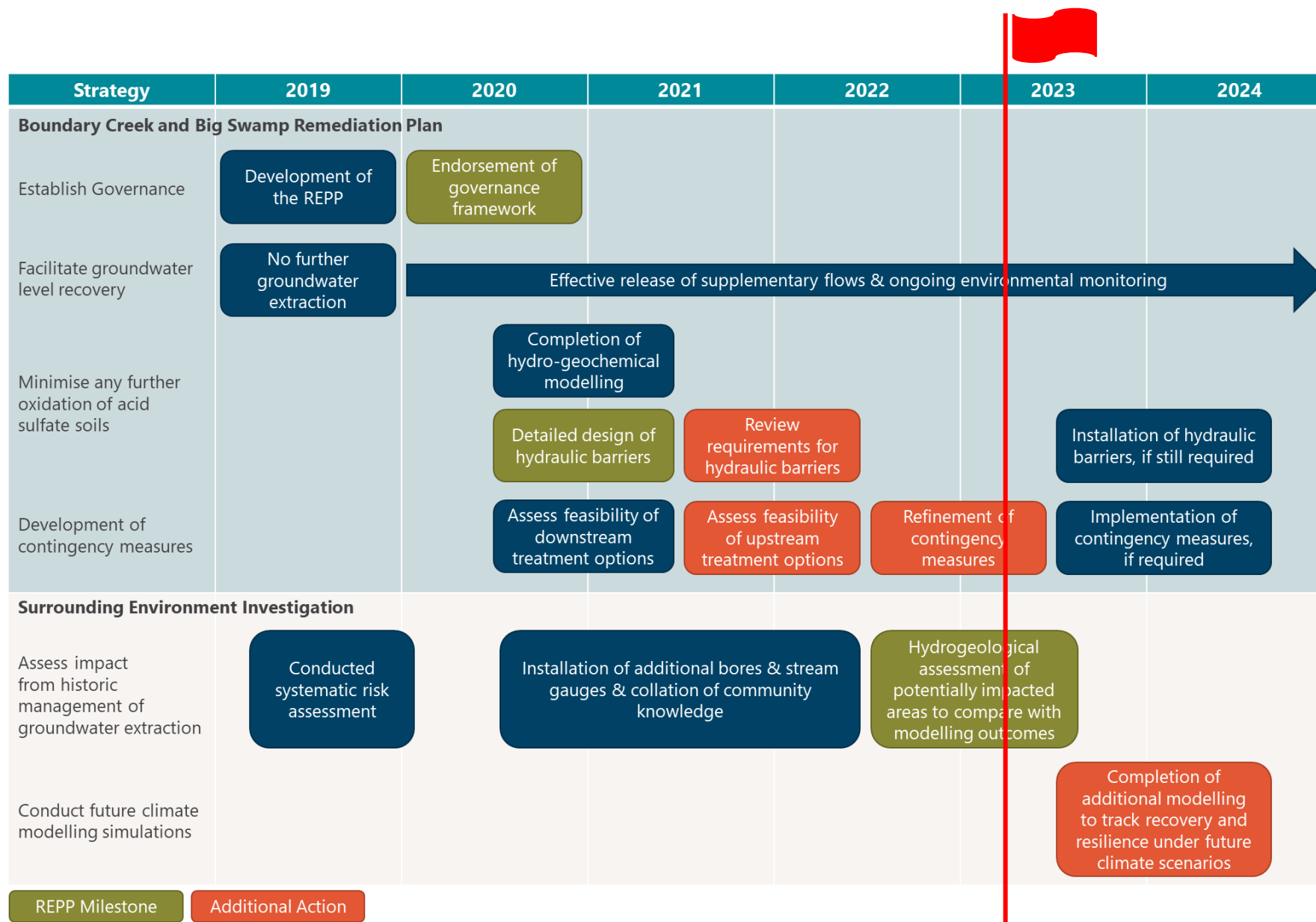


Figure 1: Timeframes for implementation of the REPP

Boundary Creek and Big Swamp

Remediation Plan

Boundary Creek & Big Swamp Status Update

Based on the most recent data collected as part of Barwon Water's routine environmental monitoring program, the following observations can be made:

- Groundwater levels within Big Swamp's upper aquifer system have generally been maintained above the top of the non-oxidised sediments, with seasonal water level declines over the summer period consistent with the historic trends (refer Figure 2 and Figure 3).
- Groundwater levels from bores installed in the Lower Tertiary Aquifer system within Big Swamp continue to indicate the long-term recovery and repressurisation of the Lower Tertiary Aquifer system, with the western end of the swamp consistently reporting artesian conditions since March 2022 (refer Figure 2 and Figure 3).
- As expected, standing water levels within Big Swamp have reduced since December 2022. However, standing water continues to be evident in both the eastern and western portions of the swamp – as at the end of February 2023, with visible improvements in the western portion of the swamp compared to March 2022 (refer Figure 4).
- Since 1 July 2022 the pH levels at stream gauges 233276 and 233228 have ranged between 4.4 and 7.2 (average of 6.0), and 3.8 and 6.5 (average of 5.6) pH units, respectively (refer Figure 5 and Figure 6). The average daily pH at 233228 since 1 July 2022 is 1.9 pH units above the 2019-2020 average daily pH. Noting that the pH within Reach 3 of Boundary Creek is expected to decrease slightly in May and June, consistent with the historic trends.
- Since 1 July 2022 average daily streamflows at stream gauge 233228 have been maintained at or above 0.98 ML/day with the commencement of supplementary flow releases on 9 December 2022 (refer Figure 5 and Figure 6).

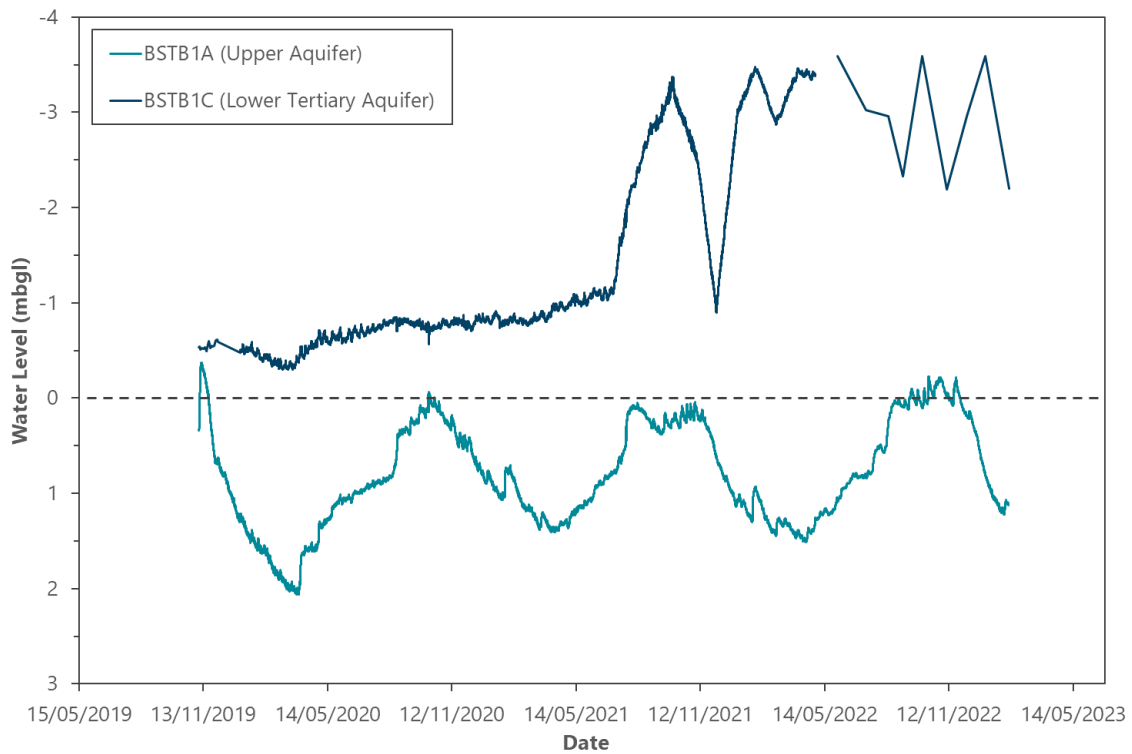


Figure 2 Groundwater levels in the eastern portion of the swamp. Note that since the logger was removed from BSTB1C in April 2022 due to leakage associated with repressurisation of the LTA, the data presented after this time relates to spot sampling data

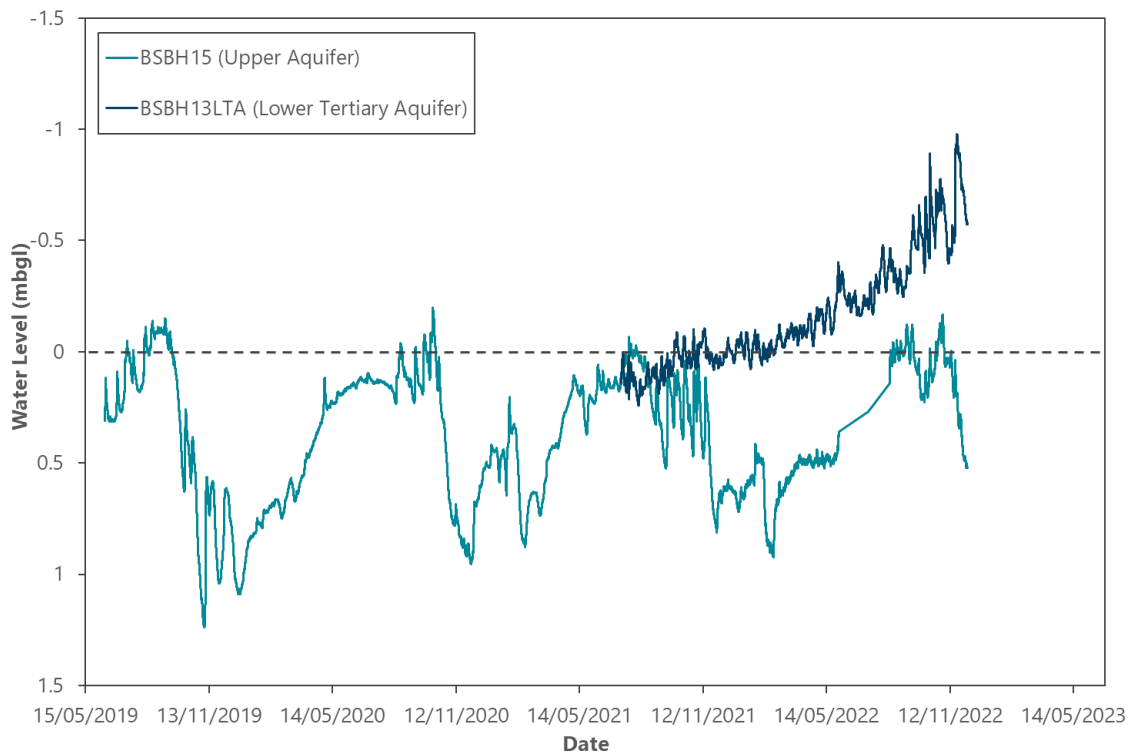


Figure 3 Groundwater levels in the western portion of the swamp. Note that the logger from BSBH15 was found to be missing on 14 July 2022 and was replaced on 15 August 2022, data between these times relates to spot sampling data

Western end of the swamp



March 2022



February 2023

Eastern end of the swamp



Figure 4 Visual comparison of Big Swamp between March 2022 and February 2023

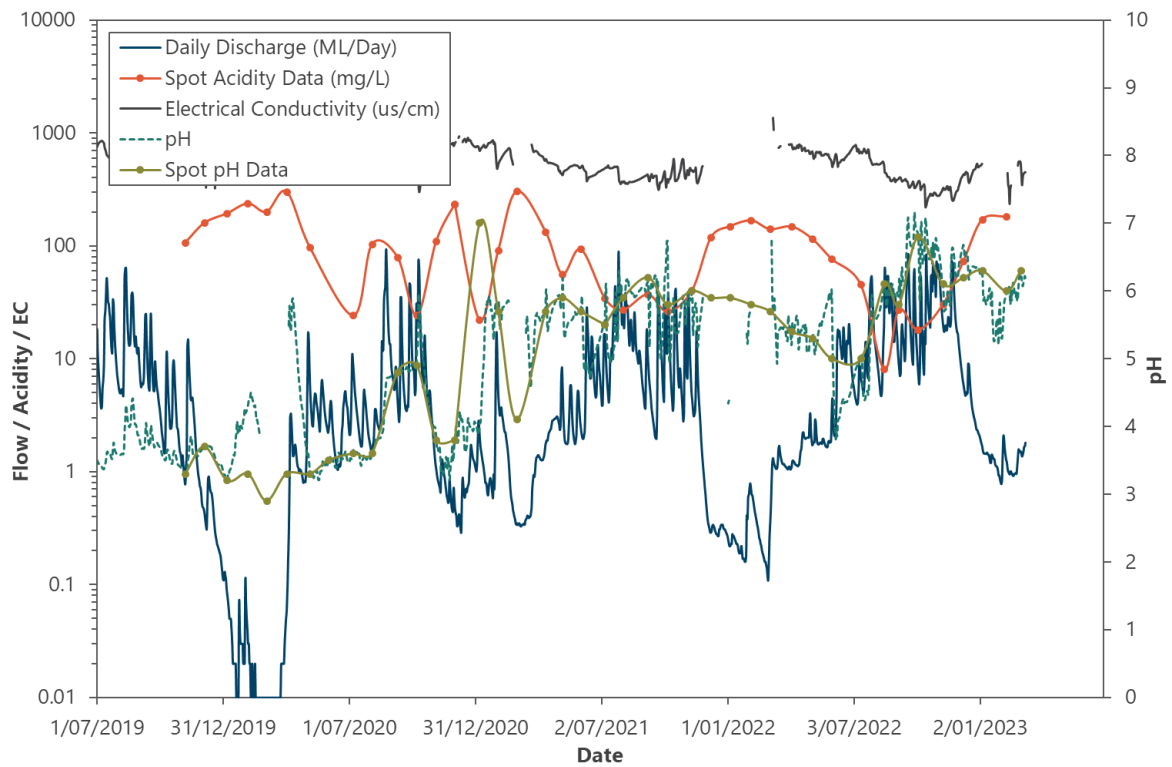


Figure 5 Streamflow, pH, EC and acidity readings in Boundary Creek – downstream of Big Swamp as recorded at stream gauge 233276 and during routine spot sampling

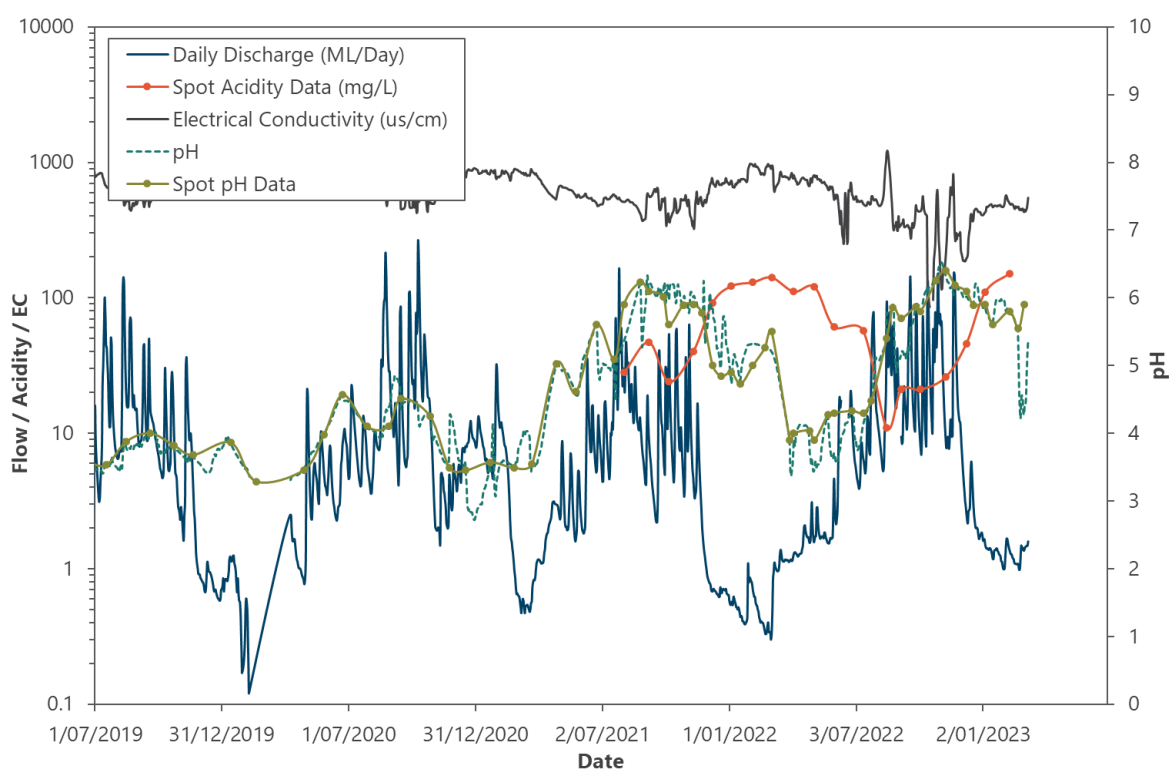


Figure 6 Streamflow, pH and acidity readings in Boundary Creek at Yeodene as recorded at stream gauge 233228 and during routine spot sampling

Actions Completed on the Boundary Creek & Big Swamp Remediation Plan since 31 December 2022

Table 1 outlines the actions completed for the Boundary Creek and Big Swamp Remediation Plan between 1 January and 31 March 2023.

Table 1 Boundary Creek and Big Swamp - Actions completed in Q3 2022/23 (1 January – 31 March 2023)

Action Items	Comment / Link
Completion of the Q3 2022/2023 Remediation Reference Group meeting	Completed on 8 March 2023
Submit quarterly update to Southern Rural Water for the period 1 January to 31 March 2023 and publish to the Your Say web page	Complete – this report Refer to the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Continue to collect data from new and existing monitoring assets	Ongoing
Continue to release supplementary flows, where required, to try to maintain a flow of at least 0.5 ML/day at the Yeodene stream gauge #233228	Ongoing

Action Items	Comment / Link
Undertake spring macro-invertebrate and water quality sampling in the Barwon River and Boundary Creek	Complete – report received and uploaded to the Your Say website in March 2023. Refer to the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Undertake the next round of the Big Swamp vegetation monitoring works	Complete – report pending. The findings from this work will be published on the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Progress amendment of the REPP based on the current 'state of knowledge' and the adaptive management approach. This will include a review of the adopted remedial actions and the development of a risk-based remedial strategy that accounts for recent community and stakeholder feedback to help facilitate natural recovery processes.	An interim draft of the revised REPP was submitted to Southern Rural Water on 22 December 2022. Noting that the remediation success targets and triggers for the implementation of contingency measures will be finalised following the completion of the Ecological Risk Assessment (ERA) and Paleoecology Study that are due to be completed by 30 June 2023. Once complete, the revised REPP will be submitted to Southern Rural Water for acceptance and published on the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Development of contingency measures	As above. Barwon Water are also currently revising the design of the downstream treatment contingency measure to account for the current 'state of knowledge' and ensure this is fit for purpose. The revised design will be submitted to Southern Rural Water by 30 June 2023.
Completion of a Level 3 Ecological Risk Assessment to quantify the risks of the existing metal and acidity loads on Boundary Creek, Big Swamp, and the Barwon River and to help inform the development of suitable triggers for the implementation of relevant contingency measures, if required	In progress. Estimated completion 30 June 2023.
Completion of a paleoecology study of Big Swamp	In progress. Estimated completion 30 June 2023

Action Items	Comment / Link
Development of the Barwon Downs Borefield Decommissioning Plan	In progress. Estimated completion 31 July 2023

Upcoming Actions Associated with the Boundary Creek & Big Swamp Remediation Plan

Table 2 outlines the upcoming actions associated with the Boundary Creek and Big Swamp Remediation Plan between 1 April and 30 June 2023.

Table 2 Boundary Creek and Big Swamp - Upcoming actions for Q4 2022/2023 (1 April – 30 June 2023)

Action Items	Due
Submit quarterly update to Southern Rural Water for the period 1 April to 30 June 2023 and publish to the Your Say web page	30 June 2023 – noting that the interim draft of the revised REPP proposes that the due date for quarterly reports be delayed by 14 days to capture as much data as possible from the reporting period. This is due to the delays in receiving the laboratory results and verified groundwater logger data following completion of the monitoring events.
Completion of the Q4 2022/2023 Remediation Reference Group meeting	June 2023
Completion of community information sessions to engage with the broader community	Dates and locations to be confirmed. Timelines are dependent on the completion of additional technical works that are due for completion by 30 June 2023.
Continue to collect data from new and existing monitoring assets	Ongoing
Continue to release supplementary flows, where required, to try to maintain a flow of at least 0.5 ML/day at the Yeodene stream gauge #233228	Ongoing
Undertake autumn macro-invertebrate and water quality sampling in the Barwon River and Boundary Creek	Due for completion by 30 June 2023
Completion of a Level 3 Ecological Risk Assessment to quantify the risks of the existing metal and acidity loads on Boundary Creek, Big Swamp, and the Barwon River and to help inform the development of suitable triggers for the implementation of relevant contingency measures, if required	Estimated completion 30 June 2023

Action Items	Due
Completion of a paleoecology study of Big Swamp	Estimated completion 30 June 2023
Development of the Barwon Downs Borefield Decommissioning Plan	Estimated completion 31 July 2023
Submission of the final revised REPP to Southern Rural Water for acceptance	Estimated completion 31 July 2023

Surrounding Environment Investigation

Surrounding Environment Investigation Status Update

As reported in the Annual Report, Barwon Water continues to progress the surrounding environment investigation in line with the process outlined in Figure 1 and Figure 7. The outcomes of this work are due to be submitted to Southern Rural Water by 31 July 2023.

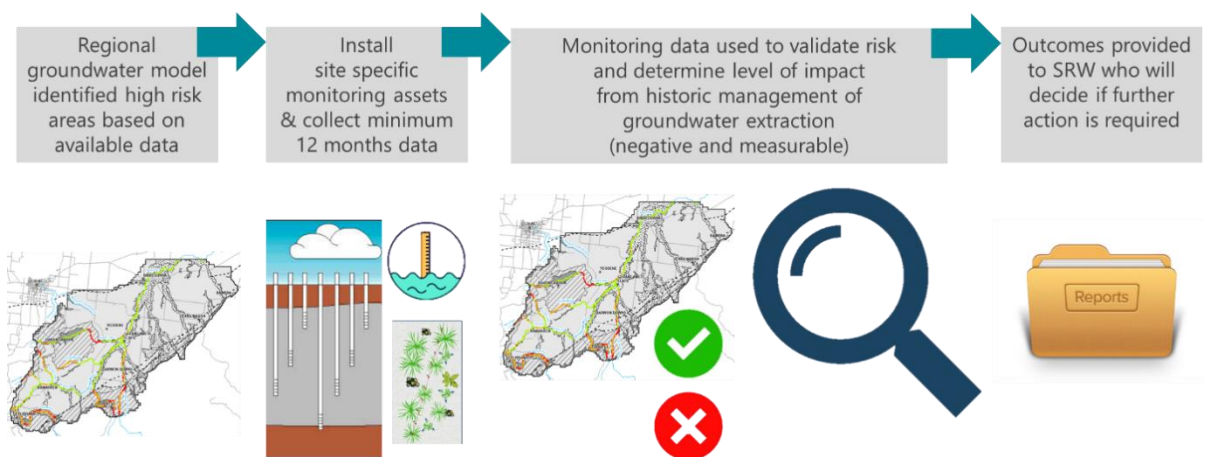


Figure 7 Process overview for the surrounding environment investigation

Actions Completed on the Surrounding Environment Investigation since 31 December 2022

Table 3 outlines the actions completed for the Surrounding Environment Investigation between 1 January and 31 March 2023.

Table 3 Surrounding Environment Investigation - Actions completed in Q3 2022/23 (1 January – 31 March 2023)

Action Items	Comment / Link
Completion of the Q3 2022/23 Remediation Reference Group meeting	Completed on 8 March 2023
Submit quarterly update for the period 1 October to 31 December 2022 to Southern Rural Water and publish to the Your Say web page	Complete – this report Refer to the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Continue collection of data from new monitoring assets for the surrounding environment investigation	Ongoing
Continue collation of community information regarding sites/issues of concern to inform the surrounding environment investigation	Ongoing
Subject to streamflows and site conditions, complete the remaining stream gauge installations	Barwon Water continues to explore options for access to enable installation of the Barongarook stream gauge – it is expected that this will be completed by 30 June 2023. The East Barwon stream gauge reinstatement remains outstanding as we continue to negotiate relevant approvals and access.
Commence the assessment phase of the surrounding environment investigation	Barwon Water is currently undertaking a hydrogeological assessment of the Kwarren (Loves Creek Catchment) and the Barwon Downs sub-areas to test and ground truth the findings from the regional groundwater model and determine if Barwon Water's historical management of groundwater pumping activities at the Barwon Downs borefield resulted in any environmentally significant adverse impacts within the surrounding environment. This work is forecast to be completed by the end of June 2023. The outcomes of these works will be used to inform the overarching surrounding environment investigation that needs to be submitted to Southern Rural Water by 31 July 2023.
Progress amendment of the REPP based on the high-level approach to the Surrounding Environment Investigation that was submitted to Southern Rural Water on 30 June 2022	An interim draft of the revised REPP was submitted to Southern Rural Water on 22 December 2022.

Action Items	Comment / Link
	<p>This will be finalised following the completion of the Ecological Risk Assessment (ERA) and Paleoecology Study that are due to be completed by 30 June 2023.</p> <p>Once complete, the revised REPP will be submitted to Southern Rural Water for acceptance and published on the Your Say website located here:</p> <p>https://www.yoursay.barwonwater.vic.gov.au/boundary-creek</p>

Upcoming Actions Associated with the Surrounding Environment Investigation

Table 4 outlines the upcoming actions associated with the Surrounding Environment Investigation between 1 April and 30 June 2023.

Table 4 Surrounding Environment Investigation - Upcoming actions for Q4 2022/2023 (1 April – 30 June 2023)

Action Items	Due
Submit quarterly update to Southern Rural Water for the period 1 April to 30 June 2023 and publish to the Your Say web page	30 June 2023 – noting that the interim draft of the revised REPP proposes that the due date for quarterly reports be delayed by 14 days to capture as much data as possible from the reporting period. This is due to the delays in receiving the laboratory results and verified groundwater logger data following completion of the monitoring events.
Completion of the Q4 2022/2023 Remediation Reference Group meeting	June 2023
Completion of community information sessions to engage with the broader community	Dates and locations to be confirmed. Timelines are dependent on the completion of additional technical works that are due for completion by 30 June 2023.
Continue collection of data from new monitoring assets for the surrounding environment investigation	Ongoing
Continue collation of community information regarding sites/issues of concern to inform the surrounding environment investigation	Ongoing
Continue the assessment phase of the surrounding environment investigation	The outcomes of these works will be used to inform the overarching surrounding environment investigation that needs to be

Action Items	Due
	submitted to Southern Rural Water by 31 July 2023

Issues Register

Table 5 below outlines any issues that have been identified during implementation of the REPP that may impact future implementation activities.

Table 5 Issues register

Issue	Likelihood	Consequence	Comments
Coronavirus (COVID-19) pandemic limits/delays engagement with stakeholders and the community	Medium	Low	<p>Remediation Reference Group meetings continue to be held online in lieu of face-to-face meetings, with e-mail updates and notes also provided</p> <p>In general, these meetings have been well attended with most members being able to attend online.</p> <p>Wherever health advice permits, we will attempt to engage in a face-to-face setting also.</p>
Availability of appropriate consultants or contractors to undertake works required under the REPP	Medium	Low	<p>Barwon Water have experienced delays regarding the availability of consultants, contractors, and materials to complete work for this project.</p> <p>With consultants continuing to be close to capacity this remains an ongoing risk and may lead to unexpected delays.</p>
Community concerns regarding the potential impacts of stream gauge infrastructure on the Platypi	Low	Medium	<p>The re-instatement of the East Barwon stream gauge remains on hold as we continue to negotiate relevant approvals and access due to concerns regarding potential impacts on the Platypi.</p> <p>Review of these concerns by Platypi experts suggest the likelihood of this occurring is extremely low. However, Barwon Water are currently investigating this further to help satisfy stakeholder concerns</p>
Extended remediation timeframes	Medium	Low	<p>While water level and quality improvements are evident, the hydro-geochemical modelling report indicated that even with active intervention, the timeframe for the</p>

Issue	Likelihood	Consequence	Comments
			<p>removal of existing acidity loads could still be in the order of 35 years.</p> <p>Further work is currently being undertaken to determine the risks based on the current conditions. This will inform the revised remedial strategy for inclusion in the revised REPP.</p>

Community Engagement

The tenth Remediation Reference Group (RRG) meeting was held via Zoom on 8 March 2023. This meeting was attended by Barwon Water, members of the community and stakeholder Remediation Reference Group and Southern Rural Water.

Topics discussed included:

- A brief discussion regarding the following items that were raised during the previous RRG meeting
 - Costs incurred to date with regard to the development and implementation of the REPP
 - Timing of the Barwon Downs borefield decommissioning works
 - Status of RRG nominated experts
 - Status of the automated floe release valve upgrades
 - Traditional Owner history and naming of Big Swamp
 - Future community information sessions
- An overview of the Boundary Creek and Big Swamp Remediation Plan and Surrounding Environment Investigation Roadmap
- A summary of the actions completed since the last meeting which was held on 16 November 2022
- Snapshot of the current conditions at Big Swamp
- Work in progress and next steps

During this meeting, an open forum was also held for group members to raise any topics that were not discussed above and for members to ask any questions that they may have. A high-level summary of the feedback received during this meeting is outlined in the table below.

Table 6 Community feedback

Community Feedback Received	Response
Following an update from Barwon Water outlining that Richard Bush (one of the RRG nominated experts) has since moved overseas, RRG members agreed that there is value in Richard's ongoing involvement in the project.	Barwon Water will follow up with Richard.
<p>A RRG member moved two motions:</p> <ol style="list-style-type: none"> 1. The Remediation Reference Group request Barwon Water move immediately to implement the environment remediation and environmental protection plan measures in the Big Swamp at Yeodene 2. The Remediation Reference Group be disbanded as our work has finished and in fact by continuing it is detrimental to the prime environmental objectives 	<p>These motions were raised during the RRG meeting on 8 March 2023. However, these were not seconded by any RRG members.</p> <p>RRG Members and Barwon Water also outlined that a number of remedial actions have already and continue to be implemented, while others proposed in the initial REPP have since been removed given they pose additional risks to the environment and do not provide any net benefit. This approach has previously been discussed with the RRG and used to inform the revised REPP that is due for completion by 31 July 2023.</p> <p>The majority of RRG members agreed to continue with the group and see value in their involvement and oversight.</p>
A RRG member asked whether the outputs from the works in progress will be uploaded to the Your Say website.	Barwon Water outlined that the reports will be uploaded to the Your Say website as soon as these become available.
A RRG member that has been involved in the Kawarren works commented that the study being done on Karwarren/Gellibrand and wider area is first class work, Barwon Water and their consultant should be applauded with the work they are doing.	Barwon Water thanked the RRG member for their feedback and outlined that additional engagement is still to occur on this project before finalisation.
A RRG member noted for the upcoming community information sessions they would like to set time for a sit-down general update presentation, and then be able to break up into groups following where people can raise questions and have discussions.	Barwon Water will consider this in preparing for future community information sessions.
A RRG member outlined their concerns that Barwon Water had not responded to recommendations provided by the Gerangamete CFA in 2019.	Barwon Water will follow up with the Gerangamete CFA to discuss these recommendations. Barwon Water will also provide an update on this during our next RRG meeting.

Community Feedback Received	Response
Following an update from Barwon Water outlining that Richard Bush (one of the RRG nominated experts) has since moved overseas, RRG members agreed that there is value in Richard's ongoing involvement in the project.	Barwon Water will follow up with Richard.
The RRG confirmed that their preference was for Barwon Water's RRG and Southern Rural Water's CLG to continue to meet separately with the ability to come together to disseminate information relevant to both groups	Barwon Water to confirm this approach with Southern Rural Water.

Success Targets

Since the implementation of the REPP in March 2020 the success targets have been reviewed and adapted over time based on feedback from the Remediation Reference Group, Southern Rural Water, and the Independent Technical Review Panel. While the revised success targets have not yet been accepted by Southern Rural Water, these were included as part of the interim draft of the revised REPP that was submitted to Southern Rural Water on 22 December 2022. Noting that the success targets are still to be finalised following the completion of the Ecological Risk Assessment (ERA) and Paleoecology Study that are due to be completed by 30 June 2023.

An update on progress against the relevant success targets will be provided in the Annual Report along with the supporting monitoring data.

Technical Reports and Investigations

Relevant technical and investigation reports that have been completed to inform the Boundary Creek, Big Swamp and Surrounding Environment Remediation and Environmental Protection Plan can be accessed via Barwon Water's dedicated Your Say webpage via the following link: <https://www.yoursay.barwonwater.vic.gov.au/boundary-creek>

Barwon Water will proactively share links to technical reports as they are published so as Remediation Reference Group members have access to the latest information as it is shared.

Contingency Measures

As part of the REPP review process Barwon Water has since developed a risk based contingency approach that focuses on minimising the potential for high-risk events, should these persist following the implementation of the primary remedial actions.

This risk based contingency approach, which has been developed in conjunction with the Remediation Reference Group, was included as part of the interim draft of the revised REPP that was submitted to Southern Rural Water on 22 December 2022. Noting that the triggers for the implementation of the specific contingency measures are still to be finalised following the completion of the Ecological Risk Assessment (ERA) and Paleoecology Study that are due to be completed by 30 June 2023.

REPP Amendments

An interim draft of the revised REPP was submitted to Southern Rural Water on 22 December 2022 to enable discussion and feedback between now and the finalisation of the revised REPP which will occur in July 2023.

The draft revised REPP has been updated to:

- Take into consideration the feedback received from the Remediation Reference Group, Southern Rural Water and the Independent Technical Review Panel
- Account for the additional knowledge and understanding that has been gained since the implementation of the REPP in March 2020
- Account for the outcomes of workshops held with the Remediation Reference Group (RRG) on 8 June 2022 and 16 December 2022 that were conducted to:
 - Check in on vision, objectives and actions outlined in the Remediation Plan
 - Discuss the proposed changes to the Remediation Plan and incorporation of previous community and stakeholder feedback, and
 - Understand the current community sentiment
- Simplify and streamline the REPP document as requested by Southern Rural Water whilst still meeting the requirements of the Section 78 Notice

Progress Report

Table 7 outlines the actions that have been completed, are currently in progress, or are yet to commence as part of implementation of the REPP through to the end of the 2022/23 monitoring and reporting period (1 July 2022 to 30 June 2023). It is important to note that additional tasks may be added as they are identified during the implementation of the REPP.

Table 7 Task Tracker

#	Activity	Due Date	Status	Health Indicator	Comments
1.0	Meeting with SRW to be held at the Barwon Water office to develop work plan towards confirming priority actions relating to feedback provided.	30-Apr-20	Complete	Complete	Complete
2.0	Complete autumn macro-invertebrates survey	30-Jun-20	Complete	Complete	Report now complete and is now uploaded on website
3.0	Complete soil incubation testing	31-May-20	Complete	Complete	Report has been finalised and is now uploaded on website
4.0	Submit quarterly report to SRW and publish to website	30-Jun-20	Complete	Complete	Completed and uploaded to website
5.0	Scoping of SW-GW technical work packages required to inform detailed design and address feedback register	30-Nov-20	Complete	Complete	Complete
6.0	Complete installation of additional monitoring assets required to inform the Surrounding Environment Investigation	30-Jun-22	In progress	At Risk	The installation of 21 additional groundwater bores and the development of 4 pre-existing groundwater bores was completed in June 2022.

#	Activity	Due Date	Status	Health Indicator	Comments
					4 of 5 proposed stream Gauges have now been installed. The Barongarook Creek stream gauge and the reinstatement of the East Barwon stream gauge remain outstanding as we continue to negotiate relevant approvals and access.
7.0	Conclusion of monitoring period enabling the capture of a full seasonal cycle of data to inform updates to the groundwater-surface water model and geochemical model.	31-Jul-20	Complete	Complete	The data collected from this work has since been included in the relevant technical reports
8.0	REPP Feedback Work plan - Submission and Acceptance	31-Jul-20	Complete	Complete	Completed
9.0	Governance Framework - Submission and Acceptance	31-Jul-20	Complete	Complete	Completed
10.0	Barwon Water Communications and Engagement Plan	Ongoing	In progress	On track	Remediation Reference Group meetings continue to be held quarterly. Community information sessions continue to be held, where possible, between April and June each year. The Communications and Engagement Plan continues to be adapted in line with the adaptive management approach.
11.0	Submit updated REPP to capture the work plan for addressing the feedback register. SRW to accept the updated REPP.	31-Dec-22	In progress	On track	On 22 December 2023 Barwon Water submitted an interim draft of the revised REPP to Southern Rural Water to enable discussion and feedback between now and the finalisation of the revised REPP which

#	Activity	Due Date	Status	Health Indicator	Comments
					will occur in July 2023 following the completion of the Ecological Risk Assessment and the Paleoecology Study.
12.0	Submit annual report to SRW and publish to Your Say website	30-Sep-20	Complete	Complete	Completed
13.0	Remediation Reference Group Meeting	2-Dec-20	Complete	Complete	Completed
14.0	Establish vegetation monitoring for Boundary Creek and Big Swamp Remediation Plan	31-Dec-20	Complete	Complete	Completed
15.0	Update groundwater-surface water model	31-Dec-20	Complete	Complete	Completed and uploaded to website
16.0	Submit quarterly report to SRW and publish to Your Say website	31-Dec-20	Complete	Complete	Completed
17.0	Remediation Reference Group Meeting	17-Mar-21	Complete	Complete	Completed
18.0	Submit quarterly report to SRW and publish to Your Say website	31-Mar-21	Complete	Complete	Completed
19.0	Remediation Reference Group Meeting	23-Jun-21	Complete	Complete	Completed
20.0	Submit quarterly report to SRW and publish to Your Say website	30-Jun-21	Complete	Complete	Completed and uploaded to website
21.0	Submission of detailed design of the hydraulic barriers outlining proposed controls or actions and any revisions to success measures/targets.	1-Jul-21	Complete	Complete	Complete. Submitted to Southern Rural Water on 1 July 2021
22.0	Update Hydro geochemical model	31-Jul-21	Complete	Complete	Completed and uploaded to website

#	Activity	Due Date	Status	Health Indicator	Comments
23.0	Complete detailed design of contingency measure and feasibility assessment for up-stream for new upstream treatment method	31-Jul-21	Complete	Complete	<p>Barwon Water have since ruled out the use of the proposed semi-passive caustic magnesia treatment system. This decision was supported by Southern Rural Water and the Independent Technical Review Panel (ITRP) in their response received on 29 August 2022.</p> <p>Following completion of the Upstream Treatment Investigation in June 2022, Barwon Water have since developed a risk based contingency approach that focuses on minimising the potential for high-risk events, should these persist following the implementation of the primary remedial actions.</p> <p>As part of this, Barwon Water are currently revising the design of the downstream treatment system, with the aim of submitting a revised design to Southern Rural Water by 30 June 2023.</p>
24.0	Remediation Reference Group Meeting	8-Sep-21	Complete	Complete	Completed
25.0	Submit annual report to SRW and publish to Your Say website	30-Sep-21	Complete	Complete	Completed and uploaded to website
26.0	Remediation Reference Group Meeting	9-Dec-21	Complete	Complete	Completed
27.0	Submit quarterly report to SRW and publish to Your Say website	31-Dec-21	Complete	Complete	Completed and uploaded to website

#	Activity	Due Date	Status	Health Indicator	Comments
28.0	Completion of upstream treatment investigation and development of Trial Plan	14-Jan-22	Complete	Complete	Complete. Submitted to SRW on 14 Jan 2022. Barwon Water have since ruled out the use of the proposed semi-passive caustic magnesia treatment system. This decision was supported by Southern Rural Water and the Independent Technical Review Panel (ITRP) in their response received on 29 August 2022.
29.0	Remediation Reference Group Meeting	21-Mar-21	Complete	Complete	Completed
30.0	Submit quarterly report to SRW and publish to Your Say website	31-Mar-22	Complete	Complete	Completed and uploaded to website
31.0	Hosted community information session in Winchelsea	10-May-22	Complete	Complete	Completed
32.0	Hosted community information session in Colac	17-May-22	Complete	Complete	Completed
33.0	Remediation Reference Group Meeting	8-Jun-22	Complete	Complete	Completed
34.0	If trial plan is approved undertake upstream treatment trial	30-Jun-22	Complete	Complete	Barwon Water have since ruled out the use of the proposed semi-passive caustic magnesia treatment system. This decision was supported by Southern Rural Water and the Independent Technical Review Panel (ITRP) in their response received on 29 August 2022.
35.0	Decision on implementation of full-scale upstream treatment, hydraulic barriers, and downstream treatment	30-Jun-22	Complete	Complete	
36.0	Submit quarterly report to SRW and publish to Your Say website	30-Jun-22	Complete	Complete	Completed and uploaded to website

#	Activity	Due Date	Status	Health Indicator	Comments
37.0	Remediation Reference Group Meeting	21-Sep-22	Complete	Complete	Completed
38.0	Submit quarterly report to SRW and publish to Your Say website	30-Sep-22	Complete	Complete	Completed and uploaded to website
39.0	Submit annual report to SRW and publish to website	30-Sep-22	Complete	Complete	Completed and uploaded to website
40.0	Remediation Reference Group Meeting	16-Nov-22	Complete	Complete	Completed
41.0	Submit quarterly report to SRW and publish to Your Say website	31-Dec-22	Complete	Complete	Completed and uploaded to website
42.0	Amend the REPP based on the current state of knowledge and adaptive management approach	31-Dec-22	In progress	On track	Interim draft submitted to Southern Rural Water on 22 December 2022. To be finalised pending the outcomes of the Ecological Risk Assessment and Paleoecology Study that are due for completion by 30 June 2023.
43.0	Remediation Reference Group Meeting	8-Mar-23	Complete	Complete	Completed
44.0	Submit quarterly report to SRW and publish to Your Say website	31-Mar-23	Complete	Complete	Completed and uploaded to website
45.0	Completion of a Level 3 Ecological Risk Assessment to quantify the risks of the existing metal and acidity loads on Boundary Creek, Big Swamp, and the Barwon River and to help inform the development of suitable triggers for the implementation of relevant contingency measures, if required	30-Jun-23	In progress	On track	This work commenced in September 2022 and is forecast to be completed by the end of June 2023
46.0	Completion of a paleoecology study of Big Swamp	30-Jun-23	In progress	On track	In September 2022 Barwon Water engaged a consultant to undertake these works, with

#	Activity	Due Date	Status	Health Indicator	Comments
					work forecast to commence in October 2022. It is anticipated these works will be completed by the end of June 2023
47.0	Remediation Reference Group Meeting	30-Jun-23	Not started		
48.0	Submit quarterly report to SRW and publish to Your Say website	30-Jun-23	Not started		
49.0	Host community information sessions with local communities to share project updates and respond to queries	TBC	Not started		Host a series of community information sessions to share progress reports on the project, be available to answer questions and to talk in more detail about the project.
50.0	Development of the Barwon Downs Borefield Decommissioning Plan	31-Jul-23	In progress	On Track	In March 2023 Barwon Water engaged a consultant to undertake these works.
51.0	Provide the outcomes of the Surrounding Environment Investigation to Southern Rural Water to determine if further remedial works is required	31-Jul-23	In progress	On Track	<p>Barwon Water is currently undertaking a hydrogeological assessment of the Kwarren (Loves Creek Catchment) and Barwon Downs sub-areas to test and ground truth the findings from the regional groundwater model and determine if Barwon Water's historical management of groundwater pumping activities at the Barwon Downs borefield resulted in any environmentally significant adverse impacts within the surrounding environment.</p> <p>This work is forecast to be completed by the end of June 2023.</p> <p>The outcomes of these works will be used to inform the overarching surrounding</p>

#	Activity	Due Date	Status	Health Indicator	Comments
					environment investigation that needs to be submitted to Southern Rural Water by 31 July 2023.