# OTWAY WATER

## BOOK 72



# "The Cost of the, Barwon Downs Borefield, 2012-2021.

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By Maddi.


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# Introduction.



Groundwater extracted from the Barwon Downs Borefield for use in the Greater Geelong region was regarded as one of the cheapest sources of water that could be harnessed during periods of drought. This stance of cheap water was adopted and strenuously maintained for 35 years. By 2017 there was a dramatic shift in sentiment as the costs and detrimental environmental impacts became too numerous and significant to ignore.

The remediation undertaken by Barwon Water to restore Boundary Creek; the Big Swamp; a section of the Barwon River and the Domestic and Stock water in one of the groundwater extraction impact areas, highlighted the need to reconsider the cost of groundwater extraction. Monetary cost. Environmental cost. Remediation cost. Long term cost.

This shift in thinking lead to the obvious questions "*How much has the Barwon Downs Borefield actually cost*?" "*Has it provided cheap water as was first thought*?" These questions have been asked of Barwon Water at the 2021 4th and 5th Remediation and Environmental Protection Plan (REPP) committee meetings. The request to Barwon Water has included the total cost for all expenses resulting from the operation of the Barwon Downs Borefield since 2012.

Otway Water Book 72 highlights some of the areas of expense in an effort to assist Barwon Water to answer the first question. The second question can be answered with a most emphatic, No! The water extracted from the Barwon Downs Borefield has not been cheap water.

This book outlines the numerous areas of expenditure and in some cases gives an estimate of the amount spent. Only Barwon Water can possibly provide a definitive cost analysis. However, whatever Barwon Water's calculations come up with for the years 2012 to 2021, the cost of groundwater has been by far much more expensive than the $50 a megalitre quoted in 2013 to Barwon Water's Community Reference Group members.

# Reports.

## 2012-2013.



Barwon Water began planning for the renewal of the groundwater extraction licence at the Barwon Downs Borefield in 2012. The objective being to prepare a case justifying the renewal of the extraction licence due in July 2019. The start of this work included preparing a draft document outlining a Barwon Downs "*Monitoring Field Investigations and Monitoring Program Scope*." The 2012 version of this program was costed out at approximately $2.9 million. The 2013 Stage 1 version of this program was trimmed down to $1.57 million. The trimmed version contained over 505 pages.[(1)] The cost of preparing these two reports would have been considerable.

At this stage in 2013 any detrimental impact from groundwater extraction was totally refuted. The 2013 monitoring program was designed to justify the renewal of the groundwater extraction licence. Nothing else. As the monitoring program was being rolled out it became obvious that costs could escalate.

## 2013 – 2021.

**SKM/Jacobs Reports.**

During this period SKM (Sinclair Knight Merz) was taken over by Jacobs. For convenience both lots of reports have been called Jacobs reports.

***Number of Reports.***

I have over 33 Jacobs final reports from this period. The total number of drafts and versions of these reports has not been ascertained. However, most of these reports have more than one draft. Some show 2 or more drafts.

***Authors.***

On average at least 4 people per report have been involved in the preparation of each report. In some cases 7 people have contributed to the presentation of the final report. Several reports acknowledged 5 authors and or supervisors. Over the years numerous individuals have been involved.

***Field Work Required.***

The "field" work undertaken and required to gather data necessary to produce these reports would have been extensive and must be taken into consideration re: cost.

***Some Idea of Cost.***

LAWROC Landcare Group commissioned a report at "mate's rates" with one author with no field work involved for around $20,000. From the

size and amount of “field work” of the reports prepared for Barwon Water, this $20,000 would have to be considered a bargain.

# Barwon Water Reports.



***Borefield Reports.***

Six annual Gerangamete Groundwater Reports to Southern Rural Water have been prepared during the 2012-2021 period.

***Remediation & Environmental Protection Plan Documentation.***

- Draft version 1 of the Boundary Creek, Big Swamp and surrounding environment Remediation and Environmental Protection Plan (REPP) consisted of 139 pages.
- Remediation and Environmental Protection Plan (REPP) Scope of Works went through a detailed revision process.
- The final scope consisted of 1279 pages, December 2019. REPP modifications, amendments and briefs.
- Seven organisations outside of Barwon Water assisted in preparing this Plan.
- Annual REPP report and quarterly reviews and modifications have been submitted to SRW.

***Various other Barwon Water Reports.***

- Background Submission for licence renewal.
- Requirement of reports as outlined in the existing licence.
- Licence Application and Standard Forms.
- Hydro-Geochemical Modelling.
- Detailed design of hydraulic barriers.

**Other Reports.**

Numerous other reports specifically aimed at the operation of the Barwon Downs Borefield management have been prepared from various sources.

- Ecology Australia licence vegetation report.
- Eco Logical Australia – assessment of historical and current vegetation, Big Swamp - seven authors.
- Austral – Sediments and Macroinvertebrates study.
- GHD – three reports – integrated groundwater/surface water modelling - geochemical modelling – additional appendices.
- Peer Review of some of GHD’s work.
- CDM – Big Swamp Success Target Assessment.
- Monash University – incubation soil testing.

- Baldwin – Listing and prioritising research questions and activities.
- John Wood La Trobe University reports.

**Rough Costing of Reports.**

There would little change from $5,000,000.



# Infrastructure, Additions & Monitoring.

- ***Observation Bores.***
  Approximately 60 observation have been monitored on a regular basis for the life of the Licence.
  Over 30 new observation bores have been drilled and installed in recent years.
- ***Track Access.***
  Access tracks into infrastructure and monitoring points have been constructed.
- ***New Vegetation Sites.***
  Permanent markers and other identification of vegetation sites have been set up.
- ***Stream Flow Gauging Stations.***
  Four old stream flow gauging stations have been recommissioned – Ten Mile Creek, Yahoo Creek, above McDonald's Dam, below McDonald's Dam.
  Three new ones constructed and one under construction – above the Big Swamp, below the Big Swamp, above McDonald's Dam at Sells property and one under construction of the Gellibrand River.
  ***An idea of cost.***
  A quote from Thiess to reinstate the Ten Mile Creek gauge back in 2015 was for $6,760 and $4,950 per year to monitor it.
  Southern Rural Water on 20 November 2015 quoted between $20,000 and $30,000 to reinstate a decommissioned gauge and at a cost of $9,000 a year for ongoing monitoring.[(2)]
  To install a new gauge would cost considerably much more.
  The new Gellibrand River gauge would be more costly than setting up a small stream gauge on Boundary Creek.
- ***Stock and Domestic Branch Line.***
  One of the impacts from groundwater extraction drawdown was the drying up of Boundary Creek over extended periods of time. Pre pumping, Boundary Creek was a perennial stream. It took some time to negotiate a solution but finally water began to flow to properties below the Big Swamp in 2021. A branch line off the

Barwon Downs to Otway Colac Pipeline was constructed.
Estimated cost ranged between $5 and $2 million. If water has to be pumped from the Barwon system costs will be involved. Water coming from the Colac end flows under gravity.
At least 5 landholders are supplied from this branch line and receive this water at no cost.



- ***Infrastructure Monitoring.***
  Monitoring, collecting, recording and report writing of data from all the infrastructure would involve staff management time.
- ***Maintenance and Operation Costs.***
  The numerous infrastructure modalities require regular maintenance and repairs adding to running costs.

**Rough Costing.**
Very difficult to ascertain an amount. $4,000,000 would be on the light side.

# Meetings.

Official meetings run by Barwon Water would include at least 3-4 staff.
More often than not there would be staff from Barwon Water's consultants.
Managerial staff would be taking notes, preparing venues, accommodation, travel, catering, distribution of notes, displays and Powerpoint type presentations etc.
Cost of person-power hours would be extensive.

**Community Reference Group (CRG) – 2013 to 2018.**
In a lead up to the renewal of the Barwon Downs Borefield Licence Barwon Water convened a Community Reference Group.

- This group met for 23 official meetings in Colac.
- These meetings involved numerous Barwon Water staff from Geelong.
- On average there would have been 4 staff per meeting.
- Consultant staff were regular speakers and would travel from Melbourne.

**Stock and Domestic Branch Line Meetings.**
Early discussions with affected landholders were held in Barwon Water's Colac office.

- There were at least three of these meetings.
- With at least 4 Geelong staff in attendance.

**A New Group Formed.**
Once the Community Reference Group (CRG) had concluded with its report to Barwon Water, it was replaced by another, the Boundary Creek Remediation

Working Group, which eventually morphed into the Remediation and Environmental Protection Plan (REPP) Working Group.

- The affected landholders re: the Stock and Domestic (S & D) water supplies, started to meet before the REPP group meetings.
- I was excluded from the S & D meetings and am not sure how many of these meetings took place.
- The S & D and REPP meetings took place at the Lakeside Bowling Club in Colac.



**Barwon Water's Boundary Creek & Big Swamp Remediation Working Group.**

This Group was referred to in different ways – Remediation Working Group; Boundary Creek Remediation Group.

- This group met for the first time 9 November 2017.
- These meetings took place until mid-December 2019.
- Three technical experts were engaged to assist this group.
- This group is now functioning as the REPP Working Group or REPP.
- Pre COVID it met at the Lakeside Colac Bowling Club.
- Several meetings were run with an independent chairperson from mosaiclab.
- Barwon Water staff have chaired recent meetings.
- There were at least 10 meetings of this group.

**Community Information Meetings-Open days and nights.**

- At least eight of these information sessions were conducted over time at Geelong, Winchelsea, Birregurra, Colac. Times ranged between 10 am to 2 pm with most being 4 - 7 pm.
- 16 July LAWROC Landcare members met in Colac with the Barwon Water Chairperson.

**REPP Meetings.**

- There have been 5 REPP meetings. Most of these have been ZOOM meetings.

**Meeting Times.**

- Meetings were scheduled at times allowing community members to attend after working hours. Usually 5 pm on.
- Times ranged from 5 to 8 pm. Plus travel time.
- Community drop in sessions were scheduled for day and night times.
- One day session was organised in the Geelong Library Garden Square.

**Paid Personnel attending Meetings.**

- All of the Barwon Water staff, consultants and independent chair would have been on wages.

**Wage Cost re: Meeting time.**

$1,500,000 would have to be the most basic cost.

## Venue Hire & Catering

Venues were booked and catering of food organised for the greater majority of the meetings.
Lake Colac Bowling Club, Duff's Café, Botanic Garden's Café, Colac COPAC.

## Meeting Travel Costs.

- Meetings were held in Colac requiring the Barwon Water staff to travel from Geelong.
- Consultants came from various parts of the country - Melbourne, Bendigo and interstate.

## Dedicated Web Site.

The preparation, updating and co-ordination of part of Barwon Water's dedicated web site was at an additional cost.

## Meetings with Consultants, Independent Experts, SRW etc.

Those meetings organised with consultants and Southern Rural Water over and above the meetings with community participation have to be taken into account regarding costing.

## Extraction Pump Maintenance, Running Costs and Removal.

The ongoing repairs, maintenance and cost of running the extraction pumps has to be taken into account. The 2017 pump removal and storage costs should be included.

## Comparative Cost of Water.

For decades it was asserted that Otway groundwater cost per megalitre was so much cheaper than any other source of water at around $50-$100 per megalitre. Groundwater came in as the cheapest; then surface water from the West Barwon Reservoir including the feeder creeks into the Wurdee Boluc Channel and lastly water from the Melbourne system.
How this cheap comparison was possible with the added costs of extracting water from 400 - 600 metres below ground level; treatment plant operation of the extracted water; pump maintenance and cooling etc. All of these costs not experienced with the water coming from the West Barwon Reservoir.

## Media Releases.

Numerous media releases were prepared, released and overseen. Another cost.

## Ongoing cost

The Borefield basically closed down at the end of 2010 when the Millenium Drought broke. There was a minor extraction in 2016. Even though the pumps were removed in 2017 the expenses associated with the Borefield will continue way past the publication of this book. Whatever the calculation of expense of the Borefield up to 2022 the continuing expenditure will only make the cost of the Barwon Downs Borefield water even more expensive.



# CONCLUSION.

There can be no doubt the final accounting of the cost of groundwater significantly exceeds the figures quoted by Barwon Water. Only after the environmental, management, operational and impact restoration cost has been calculated can a true figure be arrived at. Not to mention any ongoing cost. The responsibility of successfully arriving at an accurate figure rests with Barwon Water.

When the real cost of running the Barwon Downs Borefield is calculated this figure will send a very clear message that any future groundwater extraction activity has to be undertaken with extreme care. What initially may appear to be a cheap source of water can blow out to be an extremely expensive option when the final accounting is taken into consideration.

The 1980's statement that persisted for decades "***Because the use of groundwater usually has few adverse environmental effects, it is often favoured over surface sources which can have marked effects***"[3] has been shown to be misguided; an urban myth responsible for enormous environmental degradation of monumental proportions in the Otway Ranges.

The calculation of the environmental, management and operational costs of the Barwon Downs Borefield should act as a "lighthouse understanding" of how cautious any groundwater extraction proposals must be approached. The long term hidden and extraordinary costs associated with groundwater development is one aspect that must be taken into consideration.

To this end it is extremely important that Barwon Water conduct a comprehensive audit of the costs involved with the running of the Barwon Downs Borefield.

# References.


1. Barwon Water 2013: Barwon Downs Monitoring Program. Stage 1. Field Investigations and Monitoring Program Scope.
2. Gardiner, M., 2016: A Breakdown in Governance. Otway Water Book 33.
3. Department of Water Resources, June 1988: Water Allocations Issue Paper, report No. 18. Managing the Water Resources of South-Western Victoria. Government Printer.