

Memorial Pool Testing Report

Introduction

This report outlines the series of tests conducted on the Memorial Pool (Lap and Learner) to identify sources of water loss and evaluate the integrity of various pool systems.

Exec summary

The tests reveal notable water loss issues in both the Learner Pool and Lap Pool, requiring further investigation and repairs. The primary cause of water loss in the Lap Pool is estimated to be the scupper system, while the Learner Pool's main issue appears to be the tank.

It is recommended to prioritize addressing the SWL scuppers and return pipe work to the balance tank in the Lap Pool. Structural changes, such as replacing scuppers with a skimming channel, may be necessary.

Test Results

Test 1 - Learner Pool – Soiled Water Line (SWL) (29.05.25)

Objective: Determine water loss through scupper lines and piping to balance tank.

Results:

- No loss of water through piping lines.
- Water loss detected through the side of the scupper into the wall of the pool, see pic below.
- Unable to determine conclusively if water loss also to outside of pool tank via scupper.



Test 2 - Learner Pool – Filtered Water Lines (30.05.25)

Objective: Test production lines for water loss.

Results:

- No drop in water level after pipes were filled and left for one hour, with plant room valve closed
- Unable to fully pressure test these lines as removal of production diffusers was unable to be achieved.

Test 3 - Learner Pool – Circulation Water Loss (30.05 – 04.06.25)

Objective: Measure water loss during circulation.

Results:

- Initial water make-up after start-up due to balance tank drawing down.
- Water meter readings indicated a loss of 3m³ over five days.
- Circulation time was not known as filter kept stopping, estimated about 1 hour.

Test 4 – Learner Pool Static Tank Test (09.06.25)

Objective: Measure water loss within the pool tank (not circulating and below scupper line).

Results:

- Pool dropped 40mm, equating to 7.2m³ loss.
- Additional 9.9m³ from rainfall suggests a total loss of 17.1m³ over 5 days (**3.5m3 a day**)

Test 5 – Lap Pool – Soiled Water

Objective: Determine water loss through scupper lines and balance tank.

Results:

- Significant water loss through the walls of the pool via the scupper.
- Unable to determine if SWP pipe line is compromised due to excessive water loss, see pic below.



Test 6- Lap Pool – Production Lines

Objective: Test production lines for water loss.

Results:

- Testing may be difficult due to painted-over diffuser caps.
- As pipe work was replaced within 10 years and as there appears to be no vacuum break between the Learner and Lap supply systems – (Found when emptying the pool initial on the 28.04.25) relatively confident that this is sound.

Test 7 – Lap Pool – Circulation Water Loss (09.06 – 10.06.25)

Objective: Measure water loss during circulation.

Results:

- Water meter readings indicated a loss of 67m³ over 18 hours.
- Water meter readings indicated a loss of 147m³ over 48 hours.
- Loss over test period 214m³ (Mains top up)
- Additional loss through water added by rainfall 32.4m³
- Total loss 246.4
- Average estimated loss a day **105.6m³**

Test 8 – Lap Pool Static Tank Test (12.06.25)

Objective: Measure water loss with the pool switched off and below scupper line.

Results:

- Monitoring the pool height drop when filled to scupper lines,
- Water loss was logged over 5 day period.
- Total loss was 185mm = 70.92 m³ (**14.84m³** a day).

Test 9 – Full Tank Over Scupper Level Static Test (SWL blocked in balance tank)

Objective: Assess water loss past scupper lines and through suspected cracks.

Notes: On attempting to fill past the scupper lines it was noted how much longer it took to raise the pool level, whilst this is expected until the SWL is full, this continued after this had occurred. It was observed that water began coming out under/through the concrete concourse.

Results:

- Observed water coming out under/through the concrete concourse.
- Static testing results:
- 30 minutes: 23mm drop = 8.74m³ (2.42L/s)
- 1 hour: 45mm drop = 360m² (Surface Area of pool) * 0.045m (Pool depth drop) = 16.2m³ (water loss). Therefore if water was to continue to be lost at this rate it would mean a

daily loss of 388.8 cubic metres a day, however as this is not the normal operation level the issues have been exaggerated in this case.

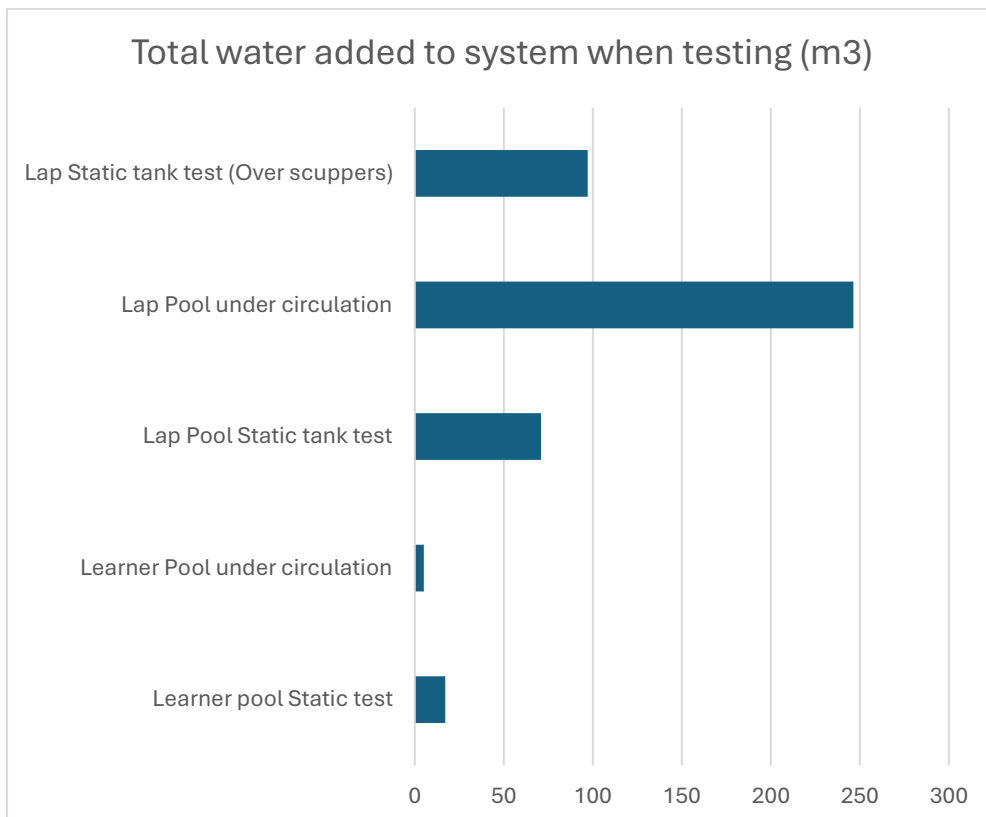
- Over continued monitoring water loss slowed to a total of 97.2m³ over a 33.5 hour timeframe, resulting in an average daily loss of **69.63 m³**.
- This further points to loss being via scupper lines.

Summarised results

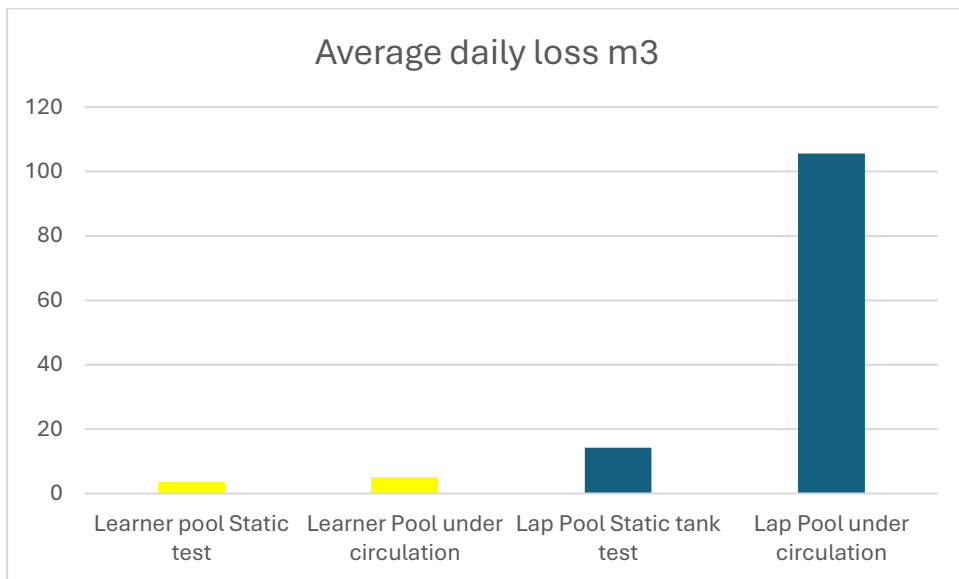
Total water loss/added to system during testing and average estimated loss

Test	Total water added to system m ³	Average daily loss m ³
Learner pool Static test	17.1	3.42
Learner Pool under circulation*	5.16	5.16
Lap Pool Static tank test	70.92	14.184
Lap Pool under circulation	246.4	105.6
Lap Static tank test (Over scuppers)	97.2	69.63

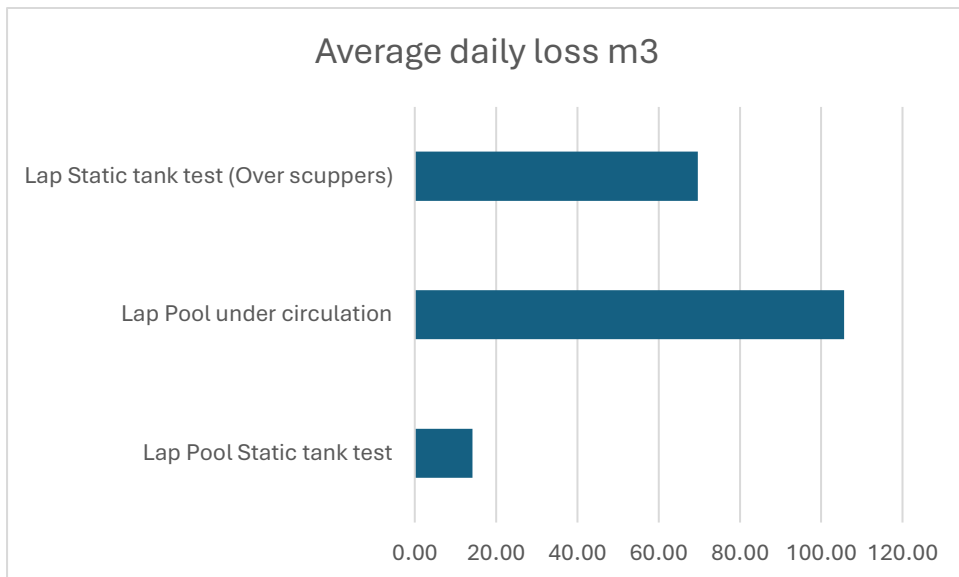
*Only circulated for a short period as filter kept stopping on low flow



Total average daily loss m3, by test and pool (over scupper not included as not normal operation)

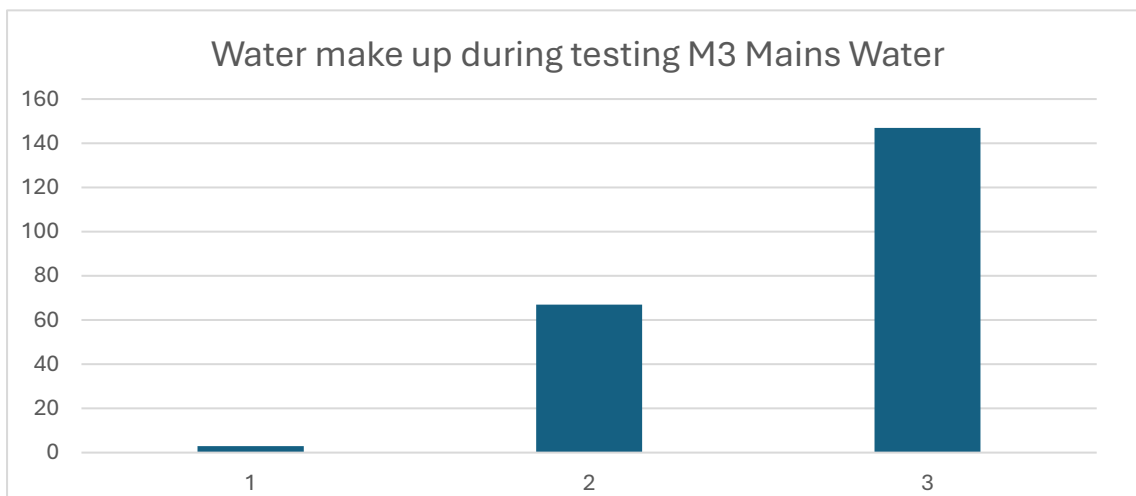


Comparison of loss from tank v's tank and scuppers



Water Meter readings

Date	Water meter readings	Water make up during testing	Comments
30.05.25	79323	M3 Mains Water	
04.06.25	79326	3	Recirculation of Learner pool (short time period)
10.06.25	79393	67	18 hours of Lap pool recirculation
12.06.25	79540	147	48 hours of lap pool recirculation



Conclusion

The tests indicate that both the Learner Pool and Lap Pool have significant water loss issues that need further investigation and repair. The identified leaks through scupper lines and potential cracks in the pool tank suggest that structural interventions may be necessary to mitigate water loss and ensure the integrity of the pool systems.

It can be estimated that the loss via the Learner pool tank (3m³) and the Lap pool tank (14m³) is negligible in comparison to the estimated 85 m³ that is being lost via the Lap pool scupper system. What is still unclear from this testing is whether the main cause of this loss is via the scupper channels or the SWL pipe work back to the balance tank or a combination of both.

Although Learner pool loss via circulation appears lower than the static loss this was not a true test as circulation was unable to be maintained for a 24 hour period. Scupper line testing however would point to the main loss from this pool being the tank.

Recommendation and next steps

Based on the information found the recommendation would be to ignore the water loss via the pool tanks and seek to address the SWL scuppers and return pipe work to the balance tank from the Lap pool. This would likely involve cutting off of the side bulkheads of this pool and replacing scuppers with a skimming channel, the return pipe would then need to be joined to this and replaced back to the balance tank. Costs will need to be sought for this (or another remedy). Once costs are gathered TCC/BVL board to make a call on action based on future of the facility according to the Geotech information relating to the newly proposed facility.

Appendices

Raw testing data

Memorial pool water leak investigations													
Dates	Pool	Test	Surface area (m2)	Evaporation mm	Loss by evaporation	Rainfall (mm)	Gain from rainfall (m3)	Over all natural gain/loss m3	Loss from pool tank mm	Loss from pool m3	Mains water make up	Total water lost from system	Comments
12.06-17.06.25	Lap	Static test	360	8	2.88	20	7.2	4.32	185	66.6		70.92	Lap system isolated
29.05-04.06.25	Learner	Pool under circulation	180	8	1.44	20	3.6	2.16	0		3	5.16	Total 5 m3 loss over 5 days not conclusive either way
4.06-9.06.25	Learner	Static tank test	180	0	0	55	9.9	9.9	40	7.2		17.1	17m3 loss over 5 days points to some loss through tank but again far lower than loss during normal operation
9.06-10.06.25 (18	Lap	Pool under circulation (reading 1)	360	0	0	25	9	9	0	0	67	76	Learner pool isolated (at supply valve)
10.06.- 12.06.25	Lap	Pool under circulation (reading 2)	360	0	0	65	23.4	23.4	0	0	147	170.4	Prolonged test to gain more info
12.06-17.06.25	Lap	Static tank test (Above scuppers)	360	0	0	0	0	0	270	97.2		97.2	Water level above scupper to test tank and scupper loss

Photos of leaks

Fig 1. Half way down Lap (QE2 side) at scupper take of location water coming up through bulkhead/concourse



Fig 2. Lap Pool concourse Dive block end middle of pool concourse



Fig 3. Ladder exit Lap Pool QE2 side Bulkhead end of Lap



Fig 4. Pool concourse BBQ side



Fig 5. Pool concourse BBQ side Dive block end



Water leak dye testing videos

Pool water coming through scupper drain take off point and bulkhead to concourse

[20250617_142450.mp4](#)

Additional testing was also carried out prior to starting the static test. Dye was used to assess suspected cracks in the pool tank where we had seen previous 'wearing' of water when filling the Lap pool scuppers.

[20250617_142420.mp4](#)

[20250617_142249.mp4](#)

[20250617_142139.mp4](#)

Water meter reading pics

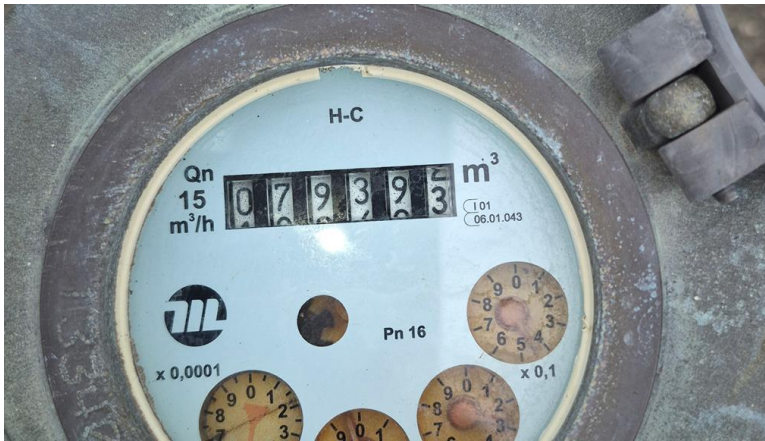
Water meter reading: **79323 (29.05.25) – Start of testing**



Water meter reading: **79326 (04.06.25) -Learner pool under circulation (approx. 1 hour)**



Water meter: **79393** (10.06.25) 18 hrs (67 m³ mains water make up)



Water meter: **79540** (12.06.25) 48 hrs (147 m³ mains water make up)

