

SHOTOVER WWTP DISPOSAL FIELD WORKS: EMERGENCY WORKS

RECORD OF DECISION

SHOTOVER WASTEWATER TREATMENT PLANT TREATED WASTEWATER DISCHARGES - EMERGENCY WORKS JUSTIFICATION

Background

1. Queenstown Lakes District Council (the **Council**) has consents allowing treated wastewater from the Shotover Wastewater Treatment Plant (**SWWTP**) to be returned to the environment using the dose and drain (**DAD**) disposal field, located south of the existing treatment ponds and close to the Shotover Delta. The DAD disposal field was originally made up of 11 individual soakage sectors/dispersal fields, where treated wastewater is then dosed into each sector to drain through the gravel into the water table below.

The problem

2. However, performance of the DAD disposal field has steadily deteriorated since 2020, and the field no longer operates as it was designed to do. Since August 2024 this deterioration has accelerated. Surface water within the DAD disposal field is unable to be fully contained, leading to discharge from the southern end of the field and into the Shotover delta environment nearby. These events resulted in an abatement notice being served by Otago Regional Council (**ORC**) for not complying with the conditions of its consent. In January 2025 the ORC initiated enforcement order proceedings in the Environment Court.
3. As the DAD disposal field has deteriorated, the Council has undertaken a series of investigative works to determine the cause of the problem and to identify potential options to resolve it. The problem is primarily two-fold. The discharge from the SWWTP (especially the pond stream) contains suspended solids that have, over time, blocked the pores in the gravel soils reducing their permeability. In addition, biological growth has occurred inside the DAD cells, reducing the ability of treated wastewater to discharge from the cells into the surrounding gravels. The Council has trialled dosing the DAD cells with Hydrogen Peroxide to manage the biological growth but that had little, if any, beneficial effect (and accessing the cells is extremely difficult).
4. In April 2024 the Council constructed Rapid Infiltration Basins (**RIB**) between the formal DAD cells to increase the storage volume and increase the soakage area available. The RIBs initially performed well and were able to manage the volumes within the disposal field area, however, with time these also became clogged and due to the saturation of the site further maintenance was not practical. In September 2024, to protect the fields' embankments, an overflow pipe was constructed from an area of the field to enable a controlled release of treated wastewater into and onto the Shotover delta when the field water level becomes high.
5. As a result, treated wastewater now flows from the disposal field, out of the site to the south. This is an uncontrolled discharge once it leaves the site. As it is a braided river system the Shotover delta has many historical channels, with the active channels regularly shifting. There is a preferential groundwater flow path following an old channel of the Shotover River resulting in ponding of treated wastewater within gravels and willows to the south of the DAD disposal field and to the north and south of ORC's training wall for the Kawarau River (installed in 2006). The groundwater flow (with surface water flow and ponding in areas) has followed the old channel. There is an extensive area of ponding from the DAD disposal area to the training wall. The treated wastewater flows under the training wall and

then discharges to the Kawarau River in one primary channel, and numerous ponded areas (as groundwater), over approximately 150m.

Adverse effects

6. The uncontrolled discharge of treated wastewater creates following potential adverse effects:
 - (a) The presence of pooled water within the DAD disposal field, and the ponding within the Shotover delta, is attracting waterfowl and other birdlife. While the Council manages waterfowl across the SWWTP treatment ponds, the new ponding areas are occurring closer to the approach to Queenstown International Airport (the **Airport**). Queenstown Airport Corporation (**QAC**) has now formally indicated that Council must act immediately to mitigate the potential risk of bird strike in a letter dated 25 March 2025 (**attached**).
 - (b) Areas affected by the present uncontrolled treated wastewater discharge are in a location with high public / recreational use.
 - (c) The Shotover River delta has considerable amenity values which are adversely affected by the ponded treated wastewater.
 - (d) While the wastewater is treated it is not treated to a drinking water standard. The treated discharge from the SWWTP meets the quality requirements for recreational water use (based on E.coli levels). But that assumes exposure within a water body rather than direct contact within the treated wastewater stream itself. A precautionary approach is therefore promoted by the Ministry for the Environment wherever there is potential for exposure to treated wastewater. Health risks associated with exposure to treated wastewater such as in this case typically derive from ingestion of impacted water while swimming / playing or eating of food that has contacted such waters. The health risk increases given the number of people potentially crossing or wading (or children playing) in the ponded or flowing areas of the treated wastewater to, and into, the Kawarau River.
7. The enforcement order proceedings by ORC against the Council are based on amenity and recreational effects. Enforcement order proceedings are not lightly taken and show the concern of ORC in relation to those effects. However, ORC had not factored in the effects of the activity on QAC's operations. This is an immediate and significant problem.

The present position

8. The Council is now of the opinion, based on expert advice, that the DAD disposal field cannot be remediated to a point where it will provide a meaningful level of discharge for the treated wastewater from the SWWTP. The expert advice is that even if remediation is attempted (during which time a portion of discharge would have to go offsite) the benefits of that remediation would only last months before deteriorating again. Further:
 - (a) The effectiveness of the DAD is continuing to deteriorate so the overflow discharges of treated wastewater will keep increasing.
 - (b) The water level within the existing RIBs needs to be lowered by 400-500mm to preserve the integrity of the bund walls by protecting against wave action and associated scour, further reducing the capacity of the DAD

and increasing offsite discharges. Further, the inclusion of wave protection to the bund walls is recommended should the DAD disposal field be retained.

- (c) The existing treatment ponds will not assist in resolving the situation as:
 - (i) They are required for treatment until the end of 2025;
 - (ii) Without full decommissioning (including removal of accumulated sludge) they provide very limited, and short term, storage that will not meaningfully reduce the offsite discharge of treated wastewater;
 - (iii) Sludge removal will take a minimum of 18 months from the end of 2025, so the ponds could not be utilised until mid-2027 at the absolute earliest;
 - (iv) Even if available to provide for buffer storage it is not anticipated that there is sufficient capacity in the existing disposal field to enable this option to provide anything but extremely short term benefits; and
 - (v) QAC does not want ongoing use of the ponds but rather is motivated to see all ponds removed from service and decommissioned as soon as practical.

Ongoing Council works

- 9. The Council has undertaken, and continues to undertake, a comprehensive upgrade of the SWWTP site. That has included:
 - (a) In 2017 installing a Modified Ludzack-Ettinger (MLE) treatment train (at a cost of approximately \$20m) changing the treatment from 100% pond based to 80% MLE treatment (achieving a much higher standard of treatment).
 - (b) In 2019 installing the DAD (at a cost of \$7.5m) and ceasing the use of a direct discharge to the Shotover River.
 - (c) The present development of an additional MLE process train due for completion at the end of 2025 (at a cost of approximately \$50m) that will result in the ponds no longer being required and a step change in the effluent quality.
 - (d) Funding of \$77m in the LTP (across Financial Years 24/25 to 29/30) for consenting, designing and constructing a long-term sustainable discharge from the SWWTP (investigations for this commenced in October 2024 and consents will be lodged in May 2026).
 - (e) Additional funding of \$22.3m across the LTP period to enable decommissioning of the remaining oxidation ponds, along with other improvements and renewals at the facility.

Preferred option

- 10. The Council, with expert assistance, has considered numerous options for managing the uncontrolled treated wastewater discharge. The preferred option is to discharge the full SWWTP treated wastewater flow to the existing northern discharge channel and to the Shotover River.

11. The benefits of this option are that it:

- (a) Provides a controlled discharge through an existing channel that is known to have worked (and was used until 2019).
- (b) Removes the DAD disposal field from operation entirely, avoiding the presence of ponding both within the DAD field and on the Shotover delta, resulting in immediate reduction of areas for waterfowl to inhabit (and avoids those ponded areas reoccurring).
- (c) The quality of the treated wastewater discharge is now significantly improved through the 2017 MLE plant and, from the end of this year the second MLE plant will be operational further enhancing the standard of treatment (through the decommissioning of the pond system).
- (d) Is in an area with good access to a flowing branch of the Shotover River and of low recreational use (significantly reducing potential recreational, amenity and human health effects).
- (e) Requires limited additional works to be utilised.
- (f) Avoids ponding on the Shotover delta to the south, thereby avoiding recreational and amenity effects in those high use areas.
- (g) Allows treatment ponds 2 & 3 to be decommissioned from the end of 2025, removing those areas for use by waterfowl.
- (h) Allows the DAD disposal area to be decommissioned and its consideration for future use, if any, to be determined (and if used to be implemented more quickly).

The law

12. Section 330 provides for 'emergency works' to be carried out without resource consent first being obtained, in specific circumstances. The Environment Court has emphasised the limited application of s 330 as follows:¹

Because of [s 330's] specifically defined circumstances of applicability ... local authorities and others should not forsake or compromise their responsibilities under the [RMA's] wider framework of regional and district planning and control on a footing that s.330 is "always available if things go wrong." Important though [s 330] is, its terms are such that it cannot be viewed as an ultimate resort for every contingency.

13. The Council is mindful of this statement when considering the potential use of emergency works.

14. Section 330 of the RMA reads (emphasis added):

Emergency works and power to take preventive or remedial action

- (1) Where—

¹ See generally *Auckland City Council v Minister for the Environment* (1999) 5 ELRNZ 1 (EnvC) at 15–16.

- (a) any public work for which any person has financial responsibility; or
- (b) **any natural and physical resource or area for which a local authority or consent authority has jurisdiction under this Act;** or
- (c) any project or work or network utility operation for which any network utility operator is approved as a requiring authority under section 167; or
- (ca) any service or system that any lifeline utility operates or provides—

is, in the **opinion of the person**, authority, network utility operator, or lifeline utility, **affected by or likely to be affected by—**

- (d) **an adverse effect on the environment which requires immediate preventative measures;** or
- (e) **an adverse effect on the environment which requires immediate remedial measures;** or
- (f) any sudden event causing or likely to cause loss of life, injury, or serious damage to property—

the provisions of sections 9, 12, 13, 14, and 15 shall not apply to any activity undertaken by or on behalf of that person, authority, network utility operator, or lifeline **utility to remove the cause of, or mitigate any actual or likely adverse effect of, the emergency.**

...

Section 330(1)(a)-(ca)

15. The Council is not concerned about any effect on the SWWTP itself, or on any other Council infrastructure. Rather, the concern is about potential adverse effects within and from the DAD disposal area on the environment. Therefore, the Council does not consider it can rely on s 330(a), (c) and (ca) in this case.
16. The Council has focused on determining whether the effect (or effects) in question fall under s 330(1)(b): are there effects or likely effects from the overflow discharge on a natural and physical resource or area that the Council has jurisdiction over under the RMA?²
17. As addressed above, the effects relied on by ORC for the enforcement orders relate to land (amenity and recreation). However, the increased waterfowl effect (and potential for bird strike) also relates to land being the operation of the Airport. The DAD disposal field, and the ponding within the Shotover delta caused by the uncontrolled treated wastewater discharges, are predominantly within the Council's designated area for wastewater and on land owned by the Council. Of critical concern to the Council is the increased risk of bird strike to the safe operation of the Airport (as set out in QAC's letter).
18. On that basis, the Council considers that it can, and does, rely on s 330(1)(b).

² 'Natural and physical resources' is defined as including "*land, water, air, soil, minerals, and energy, all forms of plants and animals (whether native to New Zealand or introduced), and all structures.*"

Forming the Councils "opinion"

19. The opinion required under s 330 is that of the Council. In forming its opinion, the Council must act objectively and reasonably in the circumstances.³ The Council has been careful to ensure, at each step of the process as required, it has viewed the effects and its proposed actions and decisions to act immediately, objectively and reasonably. The Council has worked with its expert advisors, and its legal team, to help inform it.

What are the adverse effects justifying emergency works?

20. In considering the adverse effects to support the emergency works the Council is conscious that the general unsuitably (and unsustainability) of the existing situation is not in itself sufficient. Specific adverse effects need to be identified.

Waterfowl

21. As summarised above, the presence of pooled wastewater within the DAD disposal field, and the ponding within the Shotover delta, is attracting waterfowl and other birdlife. While the Council manages waterfowl across the SWWTP treatment ponds, the DAD disposal field and new ponding areas are closer to the approach to the Airport. Bird surveys have reflected a migration of bird numbers from the oxidation ponds to the DAD disposal field location and the areas of ponding.
22. In 2024 there were two bird strike incidents at the Airport resulting in engine destruction. While there is no evidence that those bird strikes were linked to the SWWTP the presence of birds is a real, critical, and current issue for QAC, which has provided Council with a letter on 25 March 2025 expressing concern and obliging Council to act with immediate effect. This has elevated the need for Council to act with care, but to resolve the matter with urgency.

Are the effects actual or likely?

23. The effects must be either actual or likely.
24. The bird strike effect, while of low probability, is still considered by the Council (and QAC) to be of an importance sufficient to consider it, for emergency works, a "likely" effect. As summarised above:
- (a) The critical human health and safety related to airline operations and the effects of bird strike.
 - (b) Bird numbers are increasing, and the DAD and ponded areas are located in close proximity to the main flight path.
 - (c) Two 'engine loss' bird strike events have occurred within the past 12 months.
 - (d) The discharges from the field will increase with time as the field continues to deteriorate, creating additional habitat for waterfowl to the south of the field and increasing the likelihood of bird strike events with time.

³ *Auckland City Council v Minister for the Environment*, EnvC, A112/98.

Immediate response

25. To fall within s 330, immediate action must be required, again on a reasonably and objective analysis. The Council has borne in mind the Environment Court's explanation that:⁴

... the adverse effect in question must be of a kind as to require not only preventive measures or remedial measures, but also the immediate carrying out of such measures. The words used are strong in their tenor, embracing as they do both a mandatory factor ("require") and the factor of immediacy... The nature of the effect and its adversity must be commensurate with the type of situation predicated by the mandatory and immediacy factors

26. While the issue of the DAD disposal field is not new, its recent and fast deterioration is, and this increases and heightens the risk to the safe operation of the Airport. In addition:
- (a) Only recently has engineering advice been received that the water level in the RIB needs to be reduced to achieve a freeboard of 400-500mm.
 - (b) The enforcement order was only recently issued and mediation completed, a process that has heightened the Council's understanding of the need to immediately address the effects related to QAC land.
 - (c) The increase in numbers of waterfowl within the ponded areas have recently reached the point where QAC has formerly requested that the Council takes immediate steps to reduce the risk of bird strike on airport operations.
27. While not strictly required, the Council has also been mindful of the potential adverse effects of any proposed emergency works, and the discharges, on the environment. The Council is mindful that it will need to seek consents for the ongoing adverse effects of its proposed works and discharge under s 330A of the RMA where those matters will appropriately be considered and determined.

Removal of the cause / mitigating the effect – what works are anticipated?

28. The Council's preference is to bypass the DAD disposal area and to discharge the full flow of treated wastewater to the Shotover River via the historic discharge channel that was utilised prior to the DAD disposal field's construction. This situation would have to stay in place until the long-term solution becomes operative. Under s 331, the Council will need to seek resource consents for the ongoing adverse effects of the emergency work. However, undertaking the works will immediately relieve pressure on the DAD and quickly avoid ponding within and around the disposal field. This will quickly reduce and then avoid the habitat created for waterfowl significantly reducing the safety risks at the Airport.

Conclusion

⁴ *Auckland City Council v Minister for the Environment* (1999) 5 ELRNZ 1 (EnvC) at 10.

29. The Council has carefully considered the effects, their likelihood and the need for an immediate response outside of the usual RMA process. It considers that the use of s 330 emergency work provisions in the RMA is the appropriate course of action to adopt for the reasons set out above.
30. In undertaking the emergency works and the discharge the Council will:
- (a) Increase the flow into the channel over time to monitor its effectiveness.
 - (b) Invite iwi, ORC and QAC to send representatives to witness any works and the initial use of the channel.
 - (c) Take photographic and video records of all works and the initial use (and then at regular intervals) and share with iwi and ORC.
 - (d) Undertake robust environmental monitoring and sampling including where possible before any works / discharge, during the works / discharge and then ongoing after the works and discharge while they remain in operation.
 - (e) Report on the monitoring and sampling at regular intervals to iwi and ORC.

Record of decision made by Delegated Officer on 27 March 2025

A handwritten signature in dark ink, consisting of a series of loops and a long horizontal stroke extending to the right.

Mike Theelen
Chief Executive
Queenstown Lakes District Council