

Before Independent Commissioners appointed by the West Coast Regional Council

In the matter of the Resource Management Act 1991 (**the Act**)

And

In the matter of an application for resource consent under sections 88 and 127 of the Act

And

In the matter of Discharge to land consent (RC-2024-0122) and variation of resource consent (RC2021-0097-V10) to enable the exercise of the discharge consent where that could lead to the discharge of contaminants off-site at Taylorville Resource Park, Taylorville.

Summary of evidence of Sean Berry for Taylorville Resource Park Limited

Dated: 3 September 2025

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Summary of Sean Berry:

1. From June 2024 onwards ENGEO have had an engagement with the applicant to oversee compliance monitoring and develop technical input to support this temporary discharge consent and wider comprehensive consent for increased operations.
2. In order to support the temporary discharge consent, ENGEO prepared a hydrogeological assessment report informed by a range of data sources:
 - 2.1. Ground investigations completed over several stages by multiple consultants
 - 2.2. Monitoring of groundwater levels across 14 piezometers, of which 8 were constructed under ENGEO guidance, and 6 were constructed prior to our engagement.
 - 2.3. Hydraulic testing of onsite aquifer formations by way of rising and falling head slug tests in 4 locations and packer (Lugeon) testing in 1 locations.
3. The objective of the assessment was to inform feasibility of onsite groundwater recharge, being a temporary leachate discharge to ground, via a constructed stormwater infiltration basin.
4. To inform our assessment, a conceptual hydrogeological site model was developed in consideration of existing groundwater conditions, and to subsequently determine likely groundwater flow paths arising from temporary mounding of groundwater levels below the infiltration basin. The conceptual model considers groundwater flow from the infiltration basin through upper gravel layer, discharging into drainages along Taylorville Road, which are conveyed to the Grey River via two separate tributary catchments.
5. Our models shows that groundwater mounding effects will not extend to either the gully line of Noname Creek, nor to the roadside embankment along the northern side of Taylorville Road above the GDC abstraction bore surface water catchment.
6. The evidence presented considers that flow through the underlying Kaiata Mudstone towards the Grey River terrace (and the town supply) is highly unlikely. This is on the basis that the mudstone has an intact permeability 2 orders of magnitude less than the overlying gravels onsite, and 4 orders of magnitude lower the gravels from which the town supply bores abstract. Groundwater is forced to flow preferentially through the gravels units towards surface water bodies.
7. My evidence recommends that a monitoring plan proposed within draft conditions that set out a scope of works to confirm the existing hydrogeological model and performance of the infiltration basin. Adaptive monitoring allow for validation of models, while prescribing appropriate actions to monitor and assess ongoing risk, and ultimately terminate the discharge to mounding where a viable off-site effect was likely to occur.

Consideration of Evidence by Others

8. I have considered further the evidence by Mr Carl Steffans of PDP (representing WCRC), and Natalie O'Rourke of Tonkin & Taylor (representing GDC). I thank Natalie and Carl for their considerations, comments and engagement. Their comments provide a good basis for what I agree will be required to achieve the wider comprehensive consents, and look forward to active engagement with at that time in their respective capacities.
9. Natalie and Carl's evidence raises attention to uncertainty in groundwater connectivity between receptors:
 - 9.1. primarily to the GDC borefield (as the most sensitive receptor) via fracture flow within the Kaiata Mudstone. I consider on the basis of the work completed to date, which is empirically informed and peer-reviewed, that the risk associated with the proposed discharge to off-site receptors remains low.
 - 9.2. Via groundwater seepages along Taylorville Road that could be conveyed via surface water flows to receptors along the Grey River.
10. All models carry a level of uncertainty, and there is much literature in the physical groundwater modelling community regarding potential dangers in 'over-parametrisation' of groundwater models. For this reason we advocate for a robust monitoring and response plan as a safety net.
11. Acknowledging these considerations we propose a more robust version of the discharge monitoring plan in the conditions than was previously released last week – herein referred as a Groundwater Discharge Monitoring and Response Plan.
12. This plan includes provision for pre-discharge baseline level monitoring to improve our understanding of flow conditions between the infiltration basin and Taylorville Road, and which will support determining appropriate trigger levels for managing groundwater mounding effects.

Expert Witness Caucus – 1 September 2025

13. Natalie and Carl met with Richard and I at caucus on 1 September and I again thank them for their time and positive engagement. At the caucus it was broadly agreed that:
 - 13.1. Whilst not excluding ecological amenity, the town supply is recognised as the most sensitive receptor in the receiving downgradient catchment.
 - 13.2. With consideration of the town supply being across gradient than prevailing conditions, there remains some potential for groundwater to flow further to the south in response to mounding effects.

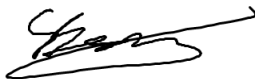
- 13.3. If there should be some continued focus on surface water seepage effects, this should be given towards the easternmost culvert along Taylorville Road, which conveys surface water flows to Noname Creek 2.
14. While we did reach a consensus on some issues, they both reiterated their positions, which broadly match the scope of their evidence. Fundamentally we believe the key points of disagreement arise from:
 - 14.1. The possible presence of fractures within the mudstone conveying water from beneath the site to the town supply, and
 - 14.2. Uncertainty on the capacity of the infiltration basin to take the proposed discharged volume.
15. On behalf of TRPL we put forward revised conditions for the monitoring of groundwater levels in relation to mounding effects, which will incorporate appropriate trigger levels as discussed.
16. With respect to the potential for fracture flow between the discharge point and GDC bore field, I consider there to be no viable pathway for the following reasons:
 - 16.1. Following Cubic Law for Fluid Flow in a deformable Rock Fracture, a 3cm wide fully dilated fracture ('fissure') from source to receptor would convey approximately 240 L/day, which I consider to be negligible.
 - 16.2. Noting comments from that any fracturing would be in from of a 'fractured zone', following the same method above a 5mm dilated fracture (more representative of conservative real world conditions) would convey 1 L/day, requiring an extensively fractured area to convey any appreciable volume of water.
 - 16.3. No evidence of extensive fracturing has been observed by in either ENGEO drill core from Kaiata Mudstone onsite, exposures of Kaiata Mudstone in the road cutting along Taylorville Road, review of drill logs for the TRLP site prior to ENGEOs engagement. Any extensive fracturing in the Taylorville Road roadcut would likely manifest as pervasive stability issues, which have not been observed.
 - 16.4. I consider that the probability of significant fracture flow is not commensurate with the risk posed by the temporary discharge consent. I do however consider that further assessment of this potential flow path should be undertaken to inform the long-term discharge consent, due to intrinsic increase in probability with time.
17. We collectively agreed that if the consent was granted that a condition similar to that proposed would be workable, however we ran out of time to fine tune the detail. We would anticipate this can be resolved with more time after the hearing.

Conclusions

18. We continue to recognise the town supply as being the most significant receptor in proximity of the site and the principal concern by both WCRC and GDC.
19. Water from the discharge will preferentially flow through the onsite gravels and enter the roadside drainages, where I consider flow effects are accommodated by existing infrastructure and can be managed via adaptive monitoring.
20. In terms of a viable pathway for this temporary discharge, it's difficult to merit one that conveys significant volumes of water from the mounding source to the GDC bore field receptor. Should a fracture zone exist within the mudstone, its ability to transmit water would be significantly constrained.
21. Should infiltration basin capacity be less than that anticipated, the rate of discharge will simply reduce which is an operational constraint. Monitoring requirements for avoidance of surface flooding or adverse seepages will remain unchanged.
22. I consider the work completed to date is commensurate to the level of risk posed by this temporary discharge. Valid points regarding uncertainties in data and hydrogeological modelling have been raised, however this should not detract from what the short-term consent aims to achieve. TRLPs aim is a practical and proactive solution to manage an existing issue, appropriately constrained by the proposed discharge monitoring plan.
23. Should this consent be granted it is hoped that proactively and collaboratively engagement with WCRC and their technical specialists can continue to support satisfactory consideration and management of commensurate risks.

Dated: 3 September 2025

Signed:



Sean Berry