

From: McKenzie, Donald [REDACTED]
Sent: Monday, May 2, 2022 12:06 PM
To: Dan Rogers
Cc: Jane Wolverton; Tahirih Rockafella
Subject: Neighbours Groundwater Study
Attachments: CMPGroundwater.pdf

Follow Up Flag: Follow up

Flag Status: Flagged

Dear Trustees,

I am sure that you have seen this letter; we would like to support the request for further testing.

I knew Dr. Tom Mommsen when he was at UBC. He is an excellent scientist and his opinion deserves your attention.

Kind regards.

Don & Barbara McKenzie

D. C. McKenzie OC, MD, PhD, LLD(Hon)
Professor Emeritus
Division of Sport and Exercise Medicine
The University of British Columbia



April 24, 2022

From Residents of North End of Galiano and Neighbours of Crystal Mountain Proposals

Dear Trustees Rockafella, Wolverton and Rogers,

We are residents of the North End of Galiano Island and neighbours of the proposed Crystal Mountain retreat centre development. We are writing to insist that you ensure a new, more thorough groundwater study is done for the Crystal Mountain Society (CMS) property before any water management plan is approved, or the development proposal is advanced. We are concerned that:

- i) the aquifer has already been classified as highly vulnerable, which confirms our experience of groundwater quality and quantity at the North End;
- ii) we, at the North End, have not received equal treatment from our trustees compared to groundwater concerns shown for the South End of Galiano, where the LTC required 72 h stress tests, testing of a neighbouring well (GALI), & based water consumption estimates on known accepted standards (GIGARHS and GALI);
- iii) in this time of climate crisis, decisions concerning groundwater appear to be contemplated in the absence of relevant evidence, without the highest standards of experimentation and analysis, and do not include large safety buffers, as would be expected under the climate emergency declared by the Islands Trust.

We thank Dr. Tom Mommsen for performing a detailed analysis of the Hy-Geo Consultant's 2015 pump test and hydrogeological report. Among the concerns raised by Dr. Mommsen are:

1. The first 2015 pump test, based on just 64.5% of nominal well production (well driller's reported yield from 1994) failed after only two hours;
2. The second pump test exhausted 86.7% of drawdown within 12 hours and "would not be able to sustain this rate for a period of 100 days without recharge" (Hy-Geo, 2015);
3. Daily sustained yield of CMS central well was then not measured, only calculated by extrapolation without any error or error propagation analysis;
4. Water use estimates for the development are seriously underestimated, which continues in the revised CMS Water Management Plan (April 2022);
5. Risks of saltwater intrusion are real but unexamined.

These points give rise to grave concerns. As a result we expect that you will, in response, require a new study, including new pump tests that reflect GILUB amendment standards for tests of 24 to 72 hours.

We expect the new study to examine:

1. Summer drawdown, recovery and recharge on the central well to be used by the proposed retreat, while also monitoring the reference well on the property;
2. Summer drawdown, recovery and recharge on at least two neighbouring wells, to determine whether they are drawing from the same aquifer and to assess the general health of the aquifer;
3. Summer 24-72-hour pump tests – as is the standard – not a 12 hour pump test as was conducted (and failed);
4. Realistic water use numbers, based on those in our Official Community Plan, taking a precautionary approach. We note that the water use estimates in the 2021 revised HGC analysis are significantly lower than required in our OCP and than estimated from provincial or national data. The potential for saltwater intrusion at the CMS well and at the CMS reference well, by sampling water very close to the bottom of the wells, post-stress test, while also gathering data for saltwater intrusion in neighbouring wells at the North-West end of Galiano.

We note that Dr. Mommsen has demonstrated that groundwater drawn from the central well at CMS will not support more than 10 people - while you are considering allowing CMS to have more than 35 people at the site each day – and the applicants are proposing to exceed that number up to six times a year.

Given the over-arching concern for groundwater sustainability and the climate crisis by the LTC and the Islands Trust, we believe you have no choice but to agree to our request.

Thank-you

Sincerely,

[Redacted signature]

[Redacted signature]

Galiano Island

[Redacted signature]