



17 January 2019

Kathy White
Waikato Regional Councillor for Taupo-Rotorua
Chair, Environmental and Services Performance Committee
Waikato Regional Council
Hamilton

Dear Kathy

Official Information Act request: Fluorocitrate testing and research

I refer to your request dated 2 December 2018 containing questions about fluorocitrate and nitrogen fixation tests and replicated research, and your amended request and additional question dated 11 January 2019.

Our responses to your requests are shown below alongside your italicised questions. Those which we can reply to are:

Under the Official Information Act I would like to ask the following questions:

1. Is there a test for any type of fluorocitrate available in New Zealand (this is a metabolite of 1080)? How long has it been available?

To our knowledge, no tests are commercially available for testing fluorocitrate.

2. Have you ever tested for fluorocitrate in water, in alga, or in animal tissue? What else have you tested for fluorocitrate?

We have detected fluorocitrate in water – please see attached paper:

Booth LH, Ogilvie SC, Wright GR, Eason CT. 1999. Degradation of sodium monofluoroacetate (1080) and fluorocitrate in water. Bull. Environ. Contam. Toxicol. 62: 34-39.

Our Toxicology Laboratory has partially developed research methods for assaying fluorocitrate in water, tissue, plasma and plant material, but not algae.

[11 January request] When I asked about fluorocitrate in water, I should have said fluorocitrate in aquatic organisms (for instance macroinvertebrates). Fluoroacetate can be detected in water but the metabolite fluorocitrate is only detected in cellular organisms - plants and air-breathing organisms from insects to elephants (please correct me if I'm wrong).

We have not tested for fluorocitrate in aquatic organisms.

3. Have fluorocitrate tests ever been done internationally on our water, alga, animal tissues, etc?

We are not aware of any such tests being done.

4. If the fluorocitrate test(s) do not exist in New Zealand, who made the decision not to have the tests available or to test for fluorocitrate?

Methods were developed for research purposes but Manaaki Whenua - Landcare Research did not pursue them commercially as there was not sufficient demand nor funding available.

6. If there is a test for fluorocitrate, what are we currently using this test for?

We are not currently using this test for any purpose.

7. Have you or any other research agency ever tested for fluorocitrate in places like Lake Taupo in the water and in the alga?

We have not conducted this sort of testing and we are not aware of any other research agencies conducting such tests.

9. Has Landcare Research or any other research agency investigated this phenomenon of 1080 causing accumulated citrate and affecting nitrogen fixation in Lake Taupo or in any other water body in New Zealand? Note: Lake Taupo now has a cap on nitrogen inputs, and councils around the country are currently working on plan changes around reducing nitrogen loss in their water catchments. MfE is involved in Lake Taupo nitrogen management through the Lake Taupo Protection Project Joint Committee.

We have not investigated accumulation of citrate in water bodies and we are not aware of any other research agencies having done so.

12. Has the issue of accumulated citrate and its impact on nitrogen fixation been considered in the Predator Free 2050 decision-making process? This programme has dramatically increased 1080 use in terms of area and amount of bait used per hectare, and therefore it's possibly causing increased nitrogen inputs to water.

This question was transferred to Predator Free 2050 Limited on 17 December 2018.

13. Has your agency been involved in research on the issue of accumulated citrate and its impact on nitrogen fixation as part of the Healthy Rivers Plan Change through Waikato Regional Council, the NPS on Freshwater Management or other water quality regulatory processes?

Our Toxicology Laboratory has not been involved in any testing and we are not aware of any research on this issue being carried out within Manaaki Whenua - Landcare Research or other agencies.

[11 January request] Also, can you please add a question to my request. I understand from reading the reassessment of 1080 in 2007, that we do not use the same water testing methodology for sodium fluoroacetate as a lot of other overseas countries. Can you please clarify this or confirm what the differences are in terms of testing water for 1080 (sodium fluoroacetate) in the US, Australia and in the UK, as opposed to how NZ tests and whether each country tests at parts per billion or trillion?

We are not aware of what methods are used in individual laboratories internationally so we are unable to comment on this question.

We are unable to provide answers to your other questions as we do not hold any information relating to them. We have checked with NIWA who confirm that they are not aware of any work of the type referred to in your requests being undertaken within their agency, and we have no grounds for believing that such information is held by any other agencies.

I am therefore declining your request with regard to the following questions under section 18(g) of the Official Information Act. You have the right to seek an investigation and review by the Ombudsman of this decision.

5. Do you believe there is a need for the fluorocitrate test? Please explain reasons for your answer.

8. Are you aware of the overseas research (see attached, Gallon et al) that says that 1080 causes accumulated citrate, that it alters the lipid composition of algal cells and that it also dramatically decreases the ability of alga to fix nitrogen?

10. Are you aware that in the ERMA reassessment of 1080 in 2007 it stated that 1080 is toxic to blue green algae and how significant is this? Is this being investigated, or has this previously been investigated in relation to the Rotorua lakes or Lake Taupo, or any other water body in New Zealand in connection to eutrophication, and toxic algae?

11. Has this international research on fluorocitrate and its effect on nitrogen fixation, ever been replicated in New Zealand? If not, why not, when it was identified as an issue in the ERMA 1080 reassessment of 2007?

14. To your knowledge, could elevated fluorocitrate have implications in other areas that should be explored through research? eg. soil quality, regular meat testing for food safety.

[11 January request] If there are differences in testing between countries (such as the UK, where the Gallon article about fluorocitrate and nitrogen fixation was written), how might this affect our calculations and measurements of sodium fluoroacetate, and the metabolite fluorocitrate, and the overall risk assessment of 1080?

Yours sincerely



Richard Gordon
Chief Executive

CC Brent Beaven
Programme Manager PF2050
Department of Conservation