

Memo

Date	2 March 2019
To	Andrea Richardson, Senior Planner
CC	Helen Shaw, Surface Water Science Manager
From	Lisa Scott on behalf of External Water Quality Data Upload Project Team

Omnibus Plan Change 2019: proposed new policy in Land and Water Regional Plan to improve access to water quality data

We would like to improve access to data submitted to Environment Canterbury when consent holders take water samples. We think this could be a simple task of adding a policy requiring electronic submission of laboratory reports in easily upload-able format for all new consents with water sampling conditions.

Electronic upload of data should save consent holders time and money; improve data quality and increase Environment Canterbury's access to data that can be used to support resource management in the region.

Proposal to Planning Section

We have already discussed with the Consents Section the possibility of adding a condition to resource consents that will require consent holders to submit electronic water quality data. Their response was generally supportive, but they felt that this would be easier to apply if it was backed by a policy in a regional plan. A similar approach, policy (Policy 4.54 of the LWRP) and consent conditions have successfully been implemented for water use data, which is being telemetered to the CRC.

I have reviewed the policies in the LWRP, but because the electronic data condition could apply to both discharges and land use consents, there is no obvious policy that could easily be amended to accommodate this. Instead I would like to request that the Omnibus plan change 2019 should consider including a new policy on electronic data submission.

The wording of such a policy would need to be developed by an experienced planner, but a suggested draft policy would be something like this:

Any new resource consent which requires as a condition of consent the collection of water quality samples, shall also include a consent condition requiring all water quality data to be submitted to the Canterbury Regional Council in a format suitable for automated upload to the council's water quality database.

The background, advantages and costs of such a proposed policy are covered below.

Current state of consent monitoring data collection

Many discharge and land use consents currently require groundwater or surface water sampling to monitor potential effects on the environment. Samples are collected by consent-holders or their contractors and submitted to accredited laboratories for analysis. The results are sent in various formats to Environment Canterbury. Lists of consent types that we think could require water sampling, and some examples of the activities where sampling is already required, are attached at the end of this memo.

At present, Environment Canterbury scientists are not readily able to make use of all the water quality data we receive from consent holders because most of these data are not captured in Hilltop (or any other searchable and downloadable database). Almost all data are sent to Environment Canterbury as documents from which data are not extractable (e.g. pdfs) and saved in Records Manager. There is no requirement for consent holders to provide data to Environment Canterbury in a way which is easy to capture in a database and no agreed format for such data.

Resource Management Officers (RMOs) use the reported results for compliance monitoring. The officers are generally reliant on results being presented and interpreted by consent holders or their consultants and are not able to access the raw data in an easily accessible format for independent analysis. Any data capture by the RMOs is done manually and the time taken for this is charged back to the consent holder.

To access consent holder water quality data, the science teams must request it from the RMOs or search through Contents Manager, then upload the data manually into the Hilltop database or temporarily into a spreadsheet for analysis. This results in process inconsistencies and takes a great deal of time. In many cases it is not easy to know that the data exists, let alone find or use it.

External Water Quality Upload Project

The Science Team at Environment Canterbury has initiated a project to improve the capture of water quality data from external parties. The largest amount of our external data comes from consent holders. The project team has been looking at ways of retrieving and extracting past data from records manager; modifying our database systems to accept external data and improving our data capture processes.

We have established that the most effective way to make the data accessible to all our staff will be to create a separate Hilltop data file for all externally-collected data. With the data owners' permissions, we will be able to obtain files from the laboratories in a format that can be automatically uploaded into Hilltop. The external data records could then be merged with Environment Canterbury's own water quality data in Hilltop as required for internal use. Maintaining a separate data file allows externally-collected data to be excluded from our web data services such as the data catalogue, LAWA or Canterbury Maps.

Laboratory supplied data in a way that can be easily uploaded into Hilltop can already be provided to us on a voluntary basis. Incorporating this into a consent conditions supported by a regional policy will improve our ability to make this an enforceable requirement.

Advantages of storing external water quality data in a database that this policy will support

- Searchable data will provide an easy method of checking that all required samples have been tested for compliance monitoring purposes
- Monitoring costs for consent holders could also be reduced if less time is spent by Environment Canterbury staff manually entering data into databases or spreadsheets for compliance checking.
- Automated systems could be set up in future for compliance checking
- Additional accessible data will give us improved spatial coverage for assessing the current state of water quality in catchments
- Scientists and monitoring officers will have easier access to past data from sampling sites for identifying/verifying significant changes or trends
- Accessible monitoring data from known discharges or activities will provide scientific evidence of water quality impacts and help to inform future planning or resource management decisions

Data formats and timing

Data from water quality analysis can currently be uploaded into Hilltop software from various data formats, including XML or CSV data files. Currently we receive data files from our own sampling as XML email attachments. These are provided by Hill Laboratories and our Hilltop software processes them automatically into the database. But there are other ways of automatically uploading data that may become available soon, including uploading files via ftp site; data entry via web portal or direct telemetry of continuous data.

Ideally, we would like the policy supporting data capture to be flexible enough to cope with rapid developments in information technology. That is why we have not proposed a specific data format in the wording of the policy. We did not want to restrict the policy to a data format(s) that could become obsolete or limit our ability to make future improvements.

We envisage that data format requirements would be supplied to consent holders via the RMOs. We could also maintain a page on our website that specifies all acceptable data submission formats for water sampling data, making it easily available and consistent for all consent holders.

Once the data provision procedures are in place with the laboratories, it should be possible for them to send us results as soon as the analyses and quality checks are completed, i.e. at the same time as they would report them to their clients. This would be our preference. However, we recommend that results are supplied to Environment Canterbury within 5 working days of completing the required analyses.

Costs of introducing this policy

Implementation of this policy should not incur any significant cost to consent holders. Depending on the volume of data supplied electronically, there could be a small reduction in monitoring costs relating to time savings if RMOs are not required to capture data manually. Automated compliance checking of the data could also save costs for consent holders.

The costs of water sampling and laboratory analyses required by resource consent conditions is an existing cost to consent holders. Laboratories will routinely supply analytical data in varying formats to their clients at no additional charge. Our discussions with Hill Laboratories, who do most of our routine analyses and data provision, have indicated that sending consent compliance data to Environment Canterbury in a format suitable for automated upload is a service that could easily be included in the analytical fees of samples being processed. Supply of past archived data, which requires some additional time to retrieve, could incur a nominal administrative fee.

The costs of developing the database structures to support external water quality data capture are already being covered by the project budget within the Science Group.

External review:	Peter Constantine, Planning Advisor	February, 2019
Approved for release:	Tim Davie, Chief Scientist	May, 2019

File reference: <https://punakorero/projects/extwaterdata/Pages/ProjectHome.aspx>

Attachments: List of consent types that could require water sampling
Examples of consented activities currently requiring water sampling

Attachment 1: List of consent types that could require water sampling

- Discharges to land or water:
 - Onsite wastewater
 - Swimming pool or spa water
 - Greywater
 - Pest control or agrichemicals
 - Offal and farm rubbish pits
 - Animal and vegetative waste
 - Stock holding areas and animal effluent
 - Silage pits and compost
 - Cemeteries
 - Sewerage systems
 - Municipal solid waste
 - Industrial and trade wastes
 - Stormwater
 - Other minor contaminant discharges
 - Water tracers
 - Managed aquifer recharge and stream augmentation
- Land use:
 - Farming land use/nutrient discharge
 - Gravel from lake and riverbeds
 - Excavation and deposition over aquifers
 - Hazardous substances storage
- Water takes:
 - Site dewatering – groundwater
 - Small and community water takes

Attachment 2: Examples of currently consented activities requiring water sampling

- Cleanfill deposition over unconfined aquifers
- Passive discharge from historic landfills
- Municipal and hazardous landfill (e.g. Burwood, Kate Valley)
- Passive discharge from hydrocarbon leaks/spills
- Stormwater network discharges to land and waterways
- Stormwater discharges containing industrial contaminants (e.g. timber treatment, composting, fertiliser depots)
- Community wastewater treatment discharges to land or water
- Marine outfalls (community wastewater, industrial wastewater)
- Industrial wastewater irrigation (e.g. meatworks, vegetable processing, dairy factories)
- Farming nutrient discharges (irrigation schemes)
- Dewatering from contaminated sites
- Managed aquifer recharge