# Measurement Quality Coding

EMAR directives require councils to accompany each measurement in an environmental data feed with an assessment of its quality.

This QA assessment should be accessible alongside the numerical value constituting the measurement, and other metadata such as units used, method employed to make the measurement, date and time of collection etc.

LAWA will move toward incorporating these quality codes in its processes, and hopes to be able to access them as needed.

There are various databases in use by councils around the country, by far the most common one being Hilltop Software’s DataTamer suite, but Kisters’ KiWIS and OGC’s 52°North are also used.

The appearance or format of data served by these databases differs from one to the next, and LAWA’s data processing scripts have to allow for this, being customised to the format being served.

I have a script to search Hilltop output for evidence of QA / QC codes, and can start that process now. If you are able to publish such information, it would be great to action that please. I have not yet found the diversity of metadata in non-Hilltop feeds, as I have seen in Hilltop feeds. If you run a non-hilltop server (ARC, BOPRC, WRC, I’m looking at you!) could you suggest how I might access such metadata please. HRC I’m also confused – you appear to run the Hilltop software, but deliver data in a format that looks non-Hilltop.

Taking an example from a Hilltop server, we see in one timeseries, the fields for an entry increase over the period covered by that timeseries. Early in the series there are few fields per record:

A screenshot of a cell phone

Description automatically generated

Figure 1: ECAN Hilltop server, delivering the basics from back in the day

Then later the detail in the Lab Method field increases, and then more fields per record are added:

A screenshot of a social media post

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Figure 2: ECAN Hilltop server, increased detail per field, then increased fields per record

It appears that an arbitrary number of parameter types can be added, which would be a perfect opportunity to add “QualityControlCode” as a field, with values following EMAR guidelines.

Looking at output from the other databases, there appears to be much less scope for fields per record. Each timeseries is headed by a “defaultMetadata” section applying to the whole timeseries, but there appears to be no scope for per-measurement metadata.

A screenshot of a social media post

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Figure 3: HRC Hilltop server delivering WML2-format

A screenshot of a social media post

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Figure 4: BoP, a 52North server running on the amazon cloud, deliveringWML2

A screenshot of a social media post

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Figure 5: WRC running a KiWIS server, delivering WML2

The highlighted field in the WRC KiWIS WML2 output suggests it may be possible to have per-record metadata such as QA codes, but the URL specified in this ‘qualifier’ is a 404.

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Following email to council contacts, hilltop has a tag to retrieve quality coding *in place of measurement values*, which is &tstype=stdqualseries

You’d have to first call to get the data, then call again to get the quality coding. If none is available you get an error you’d need to check for.