



April 15, 2015

Office of Water Quality Water-Quality Information Note 2015.06

Subject: Follow-up guidance for coding samples that exceed 500 results

This WaQI-Note provides additional guidance to merge sample-record pairs that exceed 500 results.

BACKGROUND: Office of Water Quality Water-Quality Information (WaQI) Note [2014.04](#) provided guidance for the coding of sample-record pairs expected to exceed the 500-result limit in NWIS 5.1, and further described a process where QWDATA records would automatically merge during the installation of the NWIS 5.2 release.

NWIS 5.2 was successfully loaded on all 45 NWIS hosts in November 2014. Results for sample-record pairs that were coded using the guidance in WaQI Note 2014.04 should have been successfully merged into the first (primary) sample record and the second sample was deleted. For any duplicated parameter-results, the primary sample's result was retained, and the secondary sample's result was captured in a log file.

This WaQI Note describes additional data management steps that may be needed after sample results have been merged, and provides guidelines for merging additional sample records in QWDATA. National programs, such as NAWQA and Toxics, have created many of these sample-record pairs to accommodate samples that exceeded the previous result limit. NWIS Database Managers in Water Science Centers are encouraged to contact the Data Managers for these programs prior to making changes individually.

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ACTION:

Data Management after Sample Results have been Merged:

After a successful sample merge during the NWIS 5.2 upgrade, users should take an additional data management step to keep sample header information consistent between NWIS and laboratories providing analytical results for the secondary sample. The secondary sample originally had an identical Start Date and Time as the primary sample, but with an additional End Date and Time-offset. Analytical services request forms likely were submitted to laboratories with these End Date and Time coding conventions; therefore, laboratory sample management systems also may have the End Date and Time stored. Data transmissions for the sample from laboratories, including the National Water Quality Laboratory (NWQL), received after the NWIS 5.2 upgrade may cause rejected samples and results during batch processing into QWDATA, because of an End Date and Time mismatch. Users should communicate with laboratories, including NWQL, and request that they eliminate the End Date and Time for the secondary sample.

Merging Additional Sample Records in QWDATA:

Follow the steps below if the NWIS 5.2 upgrade sample merge was not successful, or if additional sample records (for example, results stored prior to the original guidance) need to be merged into one record.

1. **Identify Records:** Using `qwreview > option 2`, create a file of the sample records for the primary and secondary sample records called `qwreview_merge.recs`. Sort this file by station ID, dates, and times. This file will show sample key information (NWIS Record Number, Site ID, Start Date and Time, End Date and Time, and Medium Code). Save this file for record keeping purposes, and it will be used later, in step 5, to communicate these changes to any laboratories that received samples with dates and times that were different from the primary sample.
2. **Create An Archive:** Using `qwreview_merge.recs` and QWDATA batch processing (`QWDATA > option 8`), produce tab-delimited batch files of all records to save for backup purposes. Name these files `qwsample.save` and `gwresult.save`.
3. **Merge Records:** Edit a copy of `qwreview_merge.recs` to include only the secondary sample records into a file called `qwreview_delete.recs`. Again, using QWDATA batch processing (`QWDATA > option 8`), produce tab-delimited batch files using option 7 for only the paired sample records; those having End Date and Time or an original Time-offset to accommodate more than 500 parameters

- a. In the resulting gwsample file, for samples that followed the End Date and Time sample coding guidance in WaQI Note 2014.04, verify each record has an End Date and Time. For samples that did not follow the coding guidance, users will have to verify against their own criteria.
- b. Make a copy of the gwsample file, and name it gwsample.delete. Save this file for later.
- c. Edit the gwsample file using the option 6 (batch editor) to either:
 - i. Remove End Date and Time values for samples that followed the coding guidance, or...
 - ii. Edit the Start Date and Time and End Date and Time on the secondary sample to match the Start Date and Time and End Date and Time of the primary sample.

The ultimate goal of this step is to change the sample key information (Agency Code, Site ID, Start Date and Time, End Date and Time, and Medium Code) of the secondary sample so that it matches those of the primary sample.

- d. Batch load the gwsample and gwresult file using QWDATA > option 8 (batch processing) > option 1 (Enter batch-file data for logged-in samples). This will combine result parameters from the secondary sample record with the primary sample, and eliminate the need for sample-record pairs.
- e. Inspect and resolve any rejected samples or results.
- f. Inspect the watlist file and look for the following issues:
 - i. Important field sample comments from the secondary sample were successfully loaded to the primary sample.
 - ii. Parameters codes in the primary sample that have been replaced ("P" – previously stored result) and updated ("U" – Updated result) by identical parameters codes from the secondary sample, but the values and method codes do not match. This can be an issue if analyzing for constituents that are included on more than one laboratory schedule from NWQL. Determine which method code has preferred status at NWQL by searching on Parameter Code in the [LIMS catalog](#). A higher "Pref." # indicates the more preferred method. Use the values from the preferred set of parameter and method codes, or ask for a reload of data from both schedules once #5 below is completed.

4. **Delete Secondary Records:** Once the merged data are checked for completeness and accuracy, open the gwsample.delete file in the batch editor and verify each record has the secondary sample information, including the End

Date and Time for samples that followed the coding guidance. Edit the Geologic Unit Code (GUNIT) field by inserting 'DELETE' (without quotes) for each sample record. Then, batch loading this edited gwsample.delete file (using QWDATA > option 8 > option 1) will delete the sample records and any of the associated result parameters from NWIS.

5. **Notify Laboratories:** With the information set-aside in step #1 above, notify the laboratories of the revised Start Date and Time and End Date and Time of the secondary sample or eliminated Start Time-offset record if the guidance was not followed. This will allow laboratories to modify sample header information so that it is consistent with NWIS.

Please send questions or comments to the Water Quality User Group (phoenix@usgs.gov).

WaQI Notes are archived on the Office of Water Quality web site, <http://water.usgs.gov/usgs/owq/WaQI/index.html>

Signed,

The Office of Water Quality 4/15/15

Distribution: All WMA Employees