

## 5.10 Tip Sheet: How do I make large-scale updates to data?

There are several different ways of making large-scale updates to the database, including batch processing, UNIX scripts, and Standard Query Language (SQL). Recommendations on which technique to use and when to use that technique are described in this tip sheet.

### Batch processing:

Batch processing can be used to change sample-level information or to add, change, or delete results for existing sample records.

- ❖ The NWIS software accepts two batch file formats—the “1 and \* card” format and the “tab-delimited” format. The “1 and \* card” format uses a file called qwcards (or qacards for QC data), and the “tab-delimited” format uses files called qwsample and qwresult (or qasample and qareult for QC data). Descriptions of the batch file formats are in [Appendix F](#). Users are referred to [Tip Sheet 5.9](#) or [Section 3.8](#) for more details on batch processing.
- ❖ To create a batch file which can be used for making updates, option 6 – *Produce batch output* and option 8 – *Produce 1- and \*-card output* can be used from the Batch Processing menu. Which output you choose is dependent on what type of changes you want to make.
- ❖ To make large-scale updates to any of the sample or result-level attributes, the tab-delimited format should be used. The “1 and \* card” format can only be used for making updates to some fields. Please refer to [Appendix F](#) for batch behavior information.
- ❖ Some attributes in the tab-delimited formatted files are protected from batch update so that the NWQL cannot overwrite field-only attributes. Please refer to [Appendix F](#) for batch behavior information.
- ❖ The ‘1 and \*-card’ batch file can be edited with any text editor. A remark code of ‘X’ will delete a result and all of the associated attributes. Parameters can be added using any UNIX editor.
- ❖ The batch process to use for updating sample records that are already in the database is option 2 – *Process Batch File for All Logged In Samples*’ for environmental samples or option 4 – *Process Batch File for All Logged In QA Samples*’ for QC samples.
- ❖ If updates are to be applied to values that have DQI protection, option 9 – *Reload QW data from batch file, overriding DQI* or option 10 – *Reload QA data from batch file, overriding DQI* should be used for environmental samples and QC samples, respectively.
- ❖ A record of the updates that were processed is written to files named *watlist.yymmdd.hhmm* and *watlist.qa.yymmdd.hhmm* for options 2 or 9 and 4 or 10, respectively.
- ❖ The parameter codes listed in the *watlist* are preceded by a one-letter code (N, U) to indicate whether the value is new or updated, respectively. Deleted parameters are described in the error messages in the *watlist*.

### **UNIX Scripts:**

UNIX scripts generally are most useful when making large-scale changes to sample-level information.

- ❖ UNIX scripts require the responses to database prompts to be exactly what was planned for in the UNIX script. If an unexpected database prompt is encountered while a UNIX script is processing, the script will provide responses to database prompts that are incorrect and data could potentially be corrupted.
- ❖ UNIX scripts should only be used by experienced UNIX users and in situations where there is no potential for planned database prompts to deviate from actual database prompts.

### **SQL:**

SQL may be used for data retrievals by trained database personnel, but it is not recommended for any data updates. Reasons for this include: (1) date-time information are internally stored in GMT; (2) certain attributes have domain-list enforcement; (3) relational tables are linked with identifiers that could be corrupted and referential integrity broken; and (4) logical rules among inter-related fields (such as rpt\_lev\_va & rpt\_lev\_tp). Some [examples of SQL statements](#) that can be used for the NWIS system are available.

- ❖ If a situation arises where you need to change a large data set and batch processing or UNIX scripts will not work, please contact the NWIS office for assistance in evaluating whether SQL can be used to change data for your particular data scenario. If SQL is determined to be the only viable approach, NWIS staff would assist in developing an SQL script to update the data.