Data-Entry Verification

1. SCOPE AND APPLICATION

1.1 All data of any type that is entered by staff into a computer or transcribed from one place to another for the Laboratory Information Management System (LIMS), Statewide Biological Database (SBIO), report writing, or similar uses must undergo entry verification. Data collected electronically do not need verification, except any parts entered "by hand".

1.2 Experience has shown that even the best effort by single conscientious staff to verify data entry will result in data-entry errors making their way into the computer file. Repeating this single-person verification with a different person will improve the accuracy, but will still result in errors in the file.

1.3 Properly performed, the two-person verification described here should result in error-free data files.

2. SUMMARY OF METHOD

2.1 A person who **did not** enter the data reads the data from the original data source (spreadsheet, benchsheet, etc.).

2.2 A second person follows along in the data repository (database, report, spreadsheet, etc.) and checks for errors as the data is read.

2.3 Any errors in data entry are corrected in the data repository. Any errors in the original data source are corrected by marking through with one line in black ink, initialing, and including a comment if necessary.

3. APPARATUS AND EQUIPMENT

3.1 Benchsheets or data sheets from which data were entered into computer.

3.2 Printout of data from computer or same data displayed on computer screen.

4. PROCEDURE

4.1 Person A reads the data aloud off of the benchsheet or data sheet from which it was entered.

4.1.1 Person A must **not** be the same one who entered the data. This is to help detect misinterpretations of entries on the raw-data sheet as a result of poor handwriting. Two different people are less likely to misread an entry the same way.

4.1.2 There are two reasons not to read from the printout. Reading aloud from the printout is less likely to catch data that may not have been entered during the data entry, and less likely to catch anything that may have been misinterpreted during data entry.

4.1.3 The data can be read very rapidly during verification, as any taxonomic mispronunciations or unclear reading of values will result in a "false" error. While incorrect pronunciation or reading may slow verification and may be common if using someone not familiar with the data, it creates apparent errors that are quickly realized to be correct. It should not, however, cause actual errors to be missed so, in the absence of someone with expertise, other staff can participate in verification, albeit at the cost of speed.

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4.2 Person B follows along on the computer data printout or computer screen with what is being read by Person A.

4.2.1 Person B can be the one who entered the data.

4.2.2 It is often useful for both people to hold a piece of paper, ruler, or other straight-edge under the line being read. Some highlight data as it is verified. These and similar techniques help keep one from losing one's place. Lines were added to the data screen in SBIO so that names and counts are easier to follow if verifying from the screen.

4.3 Verify sample information and everything that was entered or transcribed. This includes analyst names, dates, sample location, STORET number, analysis results, data qualifiers, etc.

Note: For taxonomy data, also check that the number of individuals and/or taxa in SBIO matches the number of individuals and/or taxa written on the benchsheet by the taxonomist. Resolve any discrepancies and make necessary corrections following step 4.5 (e.g. taxa number in LIMS).

4.4 If the data contained on the computer data printout or computer screen differs in any way from what is being read out loud from the benchsheet or data sheet, Person B should stop the reading, confirm the suspected error, and correct it if necessary.

4.5 Promptly correct any errors identified in verification in the computer file or databases. When making corrections to a printed benchsheet or data sheet, draw a line through the error and initial the correction.

4.6 Initial and date the original data sheet as proof of verification. If a data sheet does not already have designated data entry and verification lines, write in the type of verification performed then enter initials and date as proof of verification.

5. QUALITY CONTROL AND DOCUMENTATION

5.1 Use pen with black ink for all corrections.

5.2 To correct raw data entries, place a single line through the incorrect entry, write the corrected entry near the error and initial the correction. If the correction requires an explanation, write a comment.

Appendix of Changes

10/05/2009 Reformatted the layout following SOP LB-001.

09/28/2010 Added taxonomy note to step 4.3. Clarified steps 4.5 and 4.6.

09/28/2015 Formatted for 508 compliance.

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