United States Environmental Protection Agency

Office of Research and Development

The Children's Total Exposure to Persistent Pesticides and Other Persistent Organic Pollutants (CTEPP) Study

Entering or Importing Electronic Data into the CTEPP Database

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Columbus, OH 43201
Contract No. 68-D-99-011

Standard Operating Procedure **CTEPP-SOP-4.12**

Title: Entering or Importing Electronic Data into the CTEPP Database

Source: Battelle

U.S. Environmental Protection Agency
Office of Research and Development
Human Exposure & Atmospheric Sciences Division
Exposure Measurements & Analysis Branch

Notice: *The U.S. Environmental Protection Agency (EPA), through its Office of Research and Development (ORD), partially funded and collaborated in the research described here. This protocol is part of the Quality Systems Implementation Plan (QSIP) that was reviewed by the EPA and approved for use in this demonstration/scoping study. Mention of trade names or commercial products does not constitute endorsement or recommendation by EPA for use.*

STANDARD OPERATING PROCEDURE (SOP) FOR ENTERING OR IMPORTING ELECTRONIC DATA INTO THE CTEPP DATABASE

Prepared by: _____ Date: _____

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1.0 Scope and Applicability

This standard operating procedure (SOP) describes the method for entering or importing electronic data into the CTEPP database.

2.0 Summary of Method

This method for automatically parsing analytical data generated from gas chromatography/mass spectrometry (GC/MS) analyses into CTEPP summary spreadsheets and electronically importing the summary spreadsheets into the CTEPP study database is summarized in this SOP.

3.0 Definitions

3.1 Magnetic Storage Media: any type of diskette, cartridge, tape, or fixed disk used to store computer data.

3.2 Microsoft Access 2000 (or later): software used to create relational computer databases.

3.3 Database: a file or group of files containing records on related data, including ancillary index, report, and query files.

3.4 Duplicate Sample First Member (DS1): the first of two aliquots of a field sample. Each aliquot is treated identically throughout the field handling and laboratory analytical procedures, from preparation at the laboratory through analysis.

3.5 Duplicate Sample Second Member (DS2): the second of the two aliquots described above.

3.6 Analytical Duplicate First Member (AD1): the first aliquot of a single environmental or biological sample extract, used to assess analytical instrument precision.

3.7 Analytical Duplicate Second Member (AD2): the second aliquot of the single environmental sample extract described above.

3.8 Field Duplicate First Member (FD1): the first co-located ambient air samples. Each co-located samples is collected and treated identically throughout the field collection, storage, shipment, preparation and analysis procedures.

3.9 Field Duplicate Second Member (FD2): the second co-located ambient air samples.

3.10 Laboratory Method Blank (LMB): an aliquot of solvent or reagent water treated as a field sample in all respects in the laboratory. This includes the addition of all reagents, internal standards, surrogates, glassware, equipment, solvents, and analyses.

3.11 Laboratory Reagent Blank (LRB): an aliquot of pre-cleaned XAD-2 or isopropyl alcohol treated as a sample in all respects in the laboratory. This includes the addition of all reagents, internal standards, glassware, equipment, solvents, and analyses.

3.12 Laboratory Fortified Blank (LFM): an aliquot of solvent or reagent water, known to be below detection limits for an analyte(s), to which a known amount of target analytes is added. The LFM is then treated as a field sample in all respects in the laboratory. This includes the addition of all reagents, internal standards, surrogates, glassware, equipment, solvents, and analyses.

3.13 Field Method Blank (FMB): pre-cleaned, blank sampling medium that is not exposed, but otherwise treated as a field sample in all respects during field sample collection, storage, shipment, preparation and analysis procedures.

3.14 Matrix Spike Sample (MSS): an aliquot of a field sample, to which known amounts of target analytes are added. The MSS is then treated the same as other non-spiked field samples in all respects in the laboratory. This includes the addition of all reagents, internal standards, surrogates, glassware, equipment, solvents, and analyses.

3.15 Trend OfficeScan for Windows 98 2nd Edition (or higher): a computer virus-scanning program used to detect computer viruses and disinfect PC hard drives and diskettes. Battelle has a corporate site license with Trend Micro, Inc., (www.antivirus.com) and regularly receives upgraded versions of OfficeScan.

4.0 Cautions

Not applicable.

5.0 Responsibilities

5.1 The CTEPP Database Leader (DBL) and Task Order Leader (TOL) will oversee the entering and importing of electronic data into a CTEPP database and ensure that program SOPs are followed by all project staff.

5.2 The CTEPP project staff will be responsible for conducting various tasks of entering and importing electronic data into the CTEPP database.

6.0 Materials

6.1 Microsoft Access 2000 (or later version)

6.2 Microsoft Excel 2000 (or later version)

6.3 IBM-compatible personal computer (PC), Pentium II processor (or better)

6.4 100 MB or 250 MB Zip formatted diskettes, and/or CD R and/or CD RW compact discs for data backup, and archival.

7.0 Procedure

7.1 Electronic Parsing of GC/MS Summary Data File into CTEPP Study Templates

7.1.1 To automatically parse the GC/MS summary data file into CTEPP study templates, double-click on the Excel parsing macro's PC desktop icon.

7.1.2 Select the GC/MS summary data file, which will have a file extension of .crd, by clicking on it when prompted by the macro.

7.1.3 As the template fills to completion with imported data, it will be saved with the same filename as the .crd file name with the .xls extension when prompted by the macro. The following filename convention will be used: the first four characters of the filename are the month and day of the date on which the GC/MS analysis was started; the characters followed show the compound class and sample media (e.g., 0105PCBW). Because of the limits on the number of characters which are used for the .crd file names, the year is not included in the file name. This date does appear in the data file.

7.1.4 After the macro completes execution, the analyst will then enter additional data for this set of samples into the summary spreadsheets (Microsoft Excel) following the procedures described in Section 7.2, 7.3, and 7.4, depending upon the sample matrices and sample types.

7.2 Entering Additional Data for Air, Drinking Water, Dermal Wipe, Surface Wipe, and Transferable Residue (PUF Roller) Samples.

7.2.1 In the spreadsheet summary file generated from Section 7.1, tab to the "Diln Fac" column, and enter the dilution factor (unitless) by which the sample result for each target analyte should be multiplied. The default dilution factor is one, so if no dilutions have been performed, no changes need to be made to the summary spreadsheet.

7.2.2 If the sample is not a QA/QC sample, the analyst has finished entering the required additional data. However, if the sample is a QA/QC sample, proceed to section 7.4 to enter the rest of the information for this sample.

7.3 Entering Additional Data for Solid and Liquid Food, Urine, Floor Dust, and Soil Samples

7.3.1 In the spreadsheet summary file generated from Section 7.1, tab to the "Diln Fac" column, and enter the dilution factor (unitless) by which the sample result for each target analyte should be multiplied. The default dilution factor is one, so if no dilutions have been performed, no changes need to be made to the summary spreadsheet.

7.3.2 Enter the weight or volume extracted in the following columns for the different matrices listed below:
Solid Food: "Wt_Anal" (g)
Dust and Soil: "Weight" (g)
Liquid Food: "Vol_Anal" (mL)
Urine: "Urine_Vol" (mL)

7.3.3 If the sample is not a QA/QC sample, the analyst has finished entering the required additional data. However, if the sample is a QA/QC sample, proceed to section 7.4 to enter the rest of the information for this sample.

7.4 QA/QC Samples

7.4.1 If the sample is a QA/QC sample, tab to the "QCC" column of the summary spreadsheet and enter the applicable 3-digit QC code:

QCC	Name
DS1	Duplicate Sample First Member
DS2	Duplicate Sample Second Member
AD1	Analytical Duplicate First Member
AD2	Analytical Duplicate Second Member
FD1	Field Duplicate First Member
FD2	Field Duplicate Second Member
LFM	Laboratory Fortified Blank
LMB	Laboratory Method Blank
FMB	Field Method Blank
MSS	Matrix Spike Sample

7.4.2 Tab to the "QC Result" column and enter the applicable QC results:

QCC	QC Result
DS1	Relative Percent Difference (%) for DS1 and DS2
DS2	None
DS3	Relative Percent Difference (%) for DS3 and DS4
DS4	None
AD1	Relative Percent Difference (%) for AD1 and AD2
AD2	None
AD3	Relative Percent Difference (%) for AD3 and AD4
AD4	None
FD1	Relative Percent Difference (%) for FD1 and FD2
FD2	None
LFM	Percent Recovery (%)
LMB	None (default)
FMB	None (default)
MSS	Percent Recovery (%)

7.5 Completion of Summary Spreadsheet Data Entry

7.5.1 Print out a hard copy of the summary spreadsheets and proofread the data entered.

7.5.2 After making any necessary corrections, submit the revised hard copy, electronic copy, along with copies of the appropriate LRB pages, to the TOL.

7.5.3 The TOL will review the data, make any necessary corrections and submit the file in electronic copy of the reviewed data to the database staff. The TOL keeps the hard copy of each submitted data file.

7.6 Electronic Import of Completed Summary Spreadsheets into CTEPP Database

7.6.1 Open the spreadsheet summary file(s) and ensure that all data fields are properly entered. If not, the data package will return to the TOL for proper revision and then proceed to step 7.6.2.

7.6.2 If all data fields have been properly entered, electronically import the spreadsheet summary file(s) into the CTEPP database using the automatic import macro.

7.6.3 Run the database query to ensure all Sample IDs are valid and the data imported properly. Record the import results on the "Log Sheet for Importing CTEPP Analytical Data into Master Database". Describe any rejected Sample IDs in the comments section of log sheet. The rejected data, i.e. invalid Sample IDs will be reviewed against the raw data

recorded in the laboratory record books, and the necessary corrections will be made accordingly. All corrections are documented in the "Log Sheet for Importing CTEPP Analytical Data into Master Database" .

7.7 Data Archival to Magnetic Storage Media

7.7.1 Archive a copy of each imported summary spreadsheet, and any rejected data saved in re-named summary spreadsheets to either Zip, or floppy diskett.

7.7.2 Clearly label the archive as "Imported CTEPP Summary Spreadsheets".

8.0 Records

8.1 Records of all raw data used to compute pollutant concentrations in environmental matrices will be kept in the study files in a secure room for three years after completion of the study.

8.2 Identified and dated Zip diskette backups of the database will be archived in read-only format by the database staff for three years after completion of the study. The archives will be stored at room temperature in a clean area, free from strong magnetic fields.

9.0 Quality Control and Quality Assurance

All hard-coded computation performed within a given spreadsheet template will be validated before importing into the CTEPP database. Database and spreadsheet template calculated fields are not modifiable by the analyst. Upon completing the entries into a given spreadsheet template, the template will be printed out and hand-entered data will be proofread by a second party. Prior to importing the data into the CTEPP database, the TOL will review all the data. All magnetic storage media will be scanned for virus infection, using the most current version of Trend OfficeScan for Windows 98 2nd Edition (or higher) prior to shipment. All magnetic storage media will be shipped in rigid CD jewel case mailers. The QA Officer or designee, DBL, and TOL will oversee the data entering and importing operation and ensure that the SOPs are followed by all project staff.

10.0 References

10.1 Mastering Microsoft Access 2000 Development, Alison Balter, Sams Publishing, 1999.

10.2 Access 97 Programming, Scott Billings, Joe Rhemann, et al., Sams Publishing, 1997.

10.3 Using Excel Visual Basic for Applications, 2nd Edition Jeff Webb, QUE Corporation, 1996.

10.4 Microsoft Access for Windows 95 Power Toolkit: Cutting-Edge Tools & Techniques for Programmers, Michael Groh, Ventana, 1996.

10.5 Office 97 Bible, Edward Jones and Derek Sutton II, IDG Books Worldwide, 1997.

10.6 Running Microsoft Access 2 for Windows, John L. Viescas, Microsoft Press, 1994.

10.7 Microsoft Excel Version 5.0 User's Guide, Microsoft Corporation, 1993-94.

10.8 Implementation of EPA Order 2180.2 Standard Format for Media and Record Formats for the National Human Exposure Assessment Survey Pilot Studies, L.J. Barlion; Environmental Monitoring Systems Laboratory, U.S. Environmental Protection Agency, Cincinnati, OH, April 5, 1995.

10.9 Requirements for Delivering NHEXAS Data, EPA Draft, August 27, 1999.