

COELT, Version 1.2a

Update for
COELT User's Manual, Version 1.2, July 1995

Instructions

Enclosed is a set of inserts to update the *COELT User's Manual, Version 1.2, July 1995* to Version 1.2a, May 1997. Areas of the manual that have been affected are the Table of Contents, Chapters 3, 4, 5, 6, 10, 11, 12, 13, Appendix A, Appendix C, and Appendix D. Replace Chapter 15 entirely. Revisions include changes in the use of the *BASIS* and *EXMCODE* fields, significant figures and rounding issues, and valid value updates.

Please **replace** the pages in your manual with these Version 1.2a pages and **insert** any pages with an "a" next to the page number (e.g., page 5-31a should be inserted behind page 5-31).

COELT USER'S MANUAL

VERSION 1.2a

May 1997

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Program Overview

The title screen shows the name of the program, and the eight main functions of COELT. Each of the functions is displayed as an icon with a written description next to it. Any function can be accessed by placing the pointer on the icon and clicking the mouse once. A general description of each function follows.

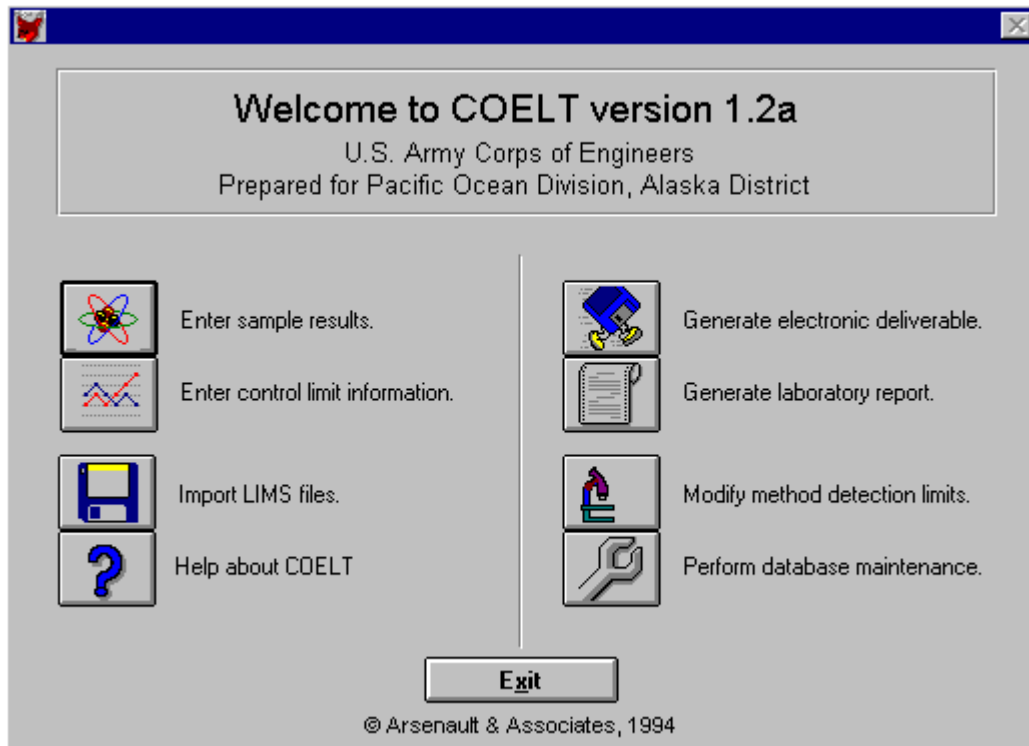


Figure 3-1. COELT Title Screen.

Valid Value Guidelines

Valid value fields are used throughout the COELT program to standardize data entry. Table 4-1 presents a list of COELT's valid value fields.

Valid values such as "Labcode", "Logcode", "Sub", and "Srm" are abbreviations of common and proper names. The remaining valid values are applied within specific sets of guidelines as described in this section. For more detailed information refer to the *Electronic Deliverable Format (EDF)* document in Chapter 15.

Some of the field names in COELT are more descriptive than the names that appear in the *EDF*. For field name translations between COELT and the *EDF* refer to Appendix A.

A comprehensive list of valid values is available in the *EDF*. If an additional value is required, this list may be updated (refer to Page 4-11).

Analyte:

The "Analyte" valid value is an abbreviation of the common chemical name. Most of the names describing the "Analyte" valid values are as they appear in US EPA Methods for Solid and Hazardous Waste SW-846. For ease of code searches use COELT's "F2" function key or refer to the *EDF*.

For Tentatively Identified Compounds (TIC), the user does not require a standard "Analyte" valid value. The user may enter the Chemical Abstract Number (CAS) of the TIC, use the hot key "F4" to find a TIC valid value, or enter in a compound name abbreviation.

Basis:

The "Basis" valid value is used to distinguish whether a soil sample result has been reported as a wet weight (W) or a dry weight (D) result. Samples that are not reported in wet or dry weight, such as water samples, are reported as Lab Filtered (L), Field Filtered (F), or Not Filtered (N). Also carried in this field is information regarding leaching procedures. Refer to Table 4-8 for "Basis" codes.

Clcode:

The "Clcode" indicates the source and type of control limit reported. The source of the control limit is determined by where the laboratory obtained the control limit (i.e., SW-846, Contract Laboratory Program, or internally determined by the laboratory). The type of control limit indicates whether the limit is for precision or accuracy criteria,

and the type of quality control sample (i.e., continuing calibration, matrix spike, laboratory duplicate, etc.). There are six types of control limits. Each of these types of control limits and their associated codes are listed in Tables 4-2 through 4-7.

The user must choose the appropriate limit for the sample or analyte type for the control limits to print on the report. For example, if a surrogate limit is not selected for a surrogate, the limit will not print out on the final report. This feature makes it possible for the user to attach the actual limit they used electronically, but flags a non standard control limit usage to the end user. For more information about how the laboratory report selects and prints the control limits and their associated codes, refer to Chapter 11.

Exmcode:

There are five categories to differentiate the extraction or digestion procedure used in the analysis of a sample. They are:

- NONE - Selected when no preparation procedure is used or called for in the analytical method. Examples include determinations such as pH, temperature, percent moisture, etc.
- METHOD - Most commonly used with EPA drinking water procedure or laboratory modified methods where the preparation procedure is directly specified within the analytical method.
- DI - Sample is directly injected into the instrument.
- Specific EPA methods - Documented, published extraction or digestion methods for which a code exists in the “Exmcode” valid value list.
- Field Preparation - For Method AK101 Gasoline Range Organics (see page 5-31a).

Lnote:

“Lnotes” are descriptive notes and/or data qualifiers that may be used to more completely describe the data. Both the “Tests” and “Results” sections of the “Enter Sample Results” area include “Lnote” fields. The same set of “Lnote” valid values may be utilized in either section.

Matrix:

The “Matrix” field indicates the matrix of the sample. There are three general matrix types: environmental, reagent, and leachate.

An environmental matrix is the actual matrix collected in the field. When the laboratory is not completely informed about the exact environmental sample matrix, the laboratory should enter the more general “Matrix” codes (such as WX). This indicates that the sample is an aqueous matrix but does not specify the water source (e.g., it is not specifically understood to be waste water). More specific valid value codes (such as WW) should be assigned only when there is sufficient information to do so (i.e., the sample origin is actually known and listed on the chain-of-custody). If the laboratory is unsure of the exact sample matrix they should use the following codes: “SX” (solid), “WX” (water), “TX” (tissue), “AX” (air), or “MX” (multiple phases).

A reagent matrix is a laboratory-generated quality assurance sample using only laboratory reagents. These samples can be assigned quality control matrix codes such as “WQ” (water quality control matrix) for a blank spike. (The use of “*Q” matrix codes is recommended for data that will be converted into IRPIMS formats, but is not required.) Laboratory-generated samples which use the original environmental sample matrix are assigned the “Matrix” valid value code that describes the original sample matrix, rather than the quality assurance sample matrix, [e.g., a matrix spiked waste water sample would be assigned “WW” (waste water) rather than “WQ” (water quality control matrix)]. Refer to Table 4-9 for “Matrix” valid values associated with quality control samples.

A leachate matrix is the matrix of the solution that results from leaching a sample. The valid value for a leachate matrix is “WL” (water leachate).

Method:

Samples are assigned an analytical method using the “Method” field. Although many of the analytical methods are similar, compound lists are often slightly different (i.e., SW8260 and E524.2). Each “Method” implies a specific list of analytes (refer to Appendix B) . These analytes must all be reported or the list must be indicated as modified by entering “T” (true) into the “Modified Parameter List” field. “F” false should be entered into this field unless the parameter list has actually been modified. A “Method” list is considered modified when compounds are deleted from the “Method” list. Reporting additional compounds is not considered a method list modification.

Pvccode:

The “Pvccode” distinguishes between primary and confirmatory results. Whenever confirmatory results are presented (e.g., chromatographic analyses), two records per result should be established. All fields in the two records will be exactly the same

except for “Pvccode” and possibly the “Qualifier” and “Result”. The confirmatory record will be assigned a “Pvccode” of “1C” (first column result), “2C” (second column result) or “MS” (GC/MS) result. And the primary record will be assigned a “Pvccode” of “PR” for primary result. The primary result will be assigned to the column result that the laboratory places the most confidence. (The primary result will generally be assigned to the first column results). Averaging of first and second column results is not allowed.

Qccode:

The “Qccode” field provides a means by which the type of sample can be distinguished. Standard field samples are assigned a “Qccode” of “CS”. Tests performed on spiked field samples are assigned “Qccodes” of “MS#” or “SD#”. Tests performed on replicates of a field sample are assigned codes of “LR#”. All other available “Qccodes” are assigned to laboratory-generated quality assurance samples, with the exception of the “NC” code that identifies “Non-COE Samples”

Valid Value Updates

Periodically, a new valid value code is required to enter data. If a code does not exist in COELT, contact the EDF Help Desk (Arsenault & Associates, Inc., at 907-346-3887) and a valid value code update will be generated and posted on the Pacific Ocean Division, Alaska District (AKD) FTP site (AKD FTP). Please allow 72 hours for update preparation and posting.

To Install an Update:

1. Download the update from the FTP.
2. Using Pkunzip Version 2.04g unzip the update to a disk or directory. (Pkzip and Pkunzip are available on the AKD FTP.)
3. Determine the location of the EDCC and COELT on the computer.
4. Type [update (space) *edcc location* (space) *coelt location*] [Enter].

A message will appear on the screen indicating that the update has been successful.

Example:

If the EDCC resides in the EDCC directory on the c:\ drive and the COELT resides in the COELT directory on the c:\ drive, the valid values would be updated using the following command:

```
update c:\edcc c:\coelt [Enter]
```

Table 4-1. Valid Value Fields

<u>Field Name</u>	<u>Definition</u>
Analyte	ANALYTE - The parameter label associated with a parameter (PARLABEL).
Basis	BASIS - The basis for soil samples (wet or dry). Also carried in this field is information regarding filtration and leaching procedures.
Ccode	CONTROL LIMIT CODE - The code identifying the type of control limit.
Exmcode	EXTRACTION METHOD CODE - The code identifying the method of preparation.
Labcode	LABORATORY - The code identifying the laboratory.
Lnote	LABORATORY NOTES - The analytical notes providing descriptive information.
Logcode	SAMPLE COLLECTION COMPANY - The company that collects the sample.
Matrix	MATRIX - The medium or make-up of a sample.
Method	ANALYTICAL METHOD CODE - The code identifying the analytical method of analysis (ANMCODE).
Pvccode	PRIMARY VALUE CODE - The code identifying whether a value is primary or confirmatory.
Qccode	QUALITY CONTROL CODE - The code identifying the type of sample (i.e. environmental or laboratory-generated).
Qualifier	PARAMETER QUALIFIER - The code for qualifying results (PARVQ).
Rep Qual	REPORTED DETECTION LIMIT QUALIFIER - The code identifying the type of reporting limit (i.e., practical quantitation limit, instrument detection limit, etc.) (REPDLVQ).
Sub	SUBCONTRACTED LABORATORY - The Labcode of the subcontracted laboratory.
Srm	STANDARD REFERENCE MATERIAL - The code identifying the source of the reference material for the calibration.
Units	UNITS - The units of measure used to report a result.

Table 4-8. Basis Codes

<u>Code</u>	<u>Name</u>
D	Dry
W	Wet
C	California Waste Extraction (WET) - Title 22 of CAC
F	Field Filtered
L	Lab Filtered
N	Not Filtered
T	SW Method 1311 Toxicity Characteristic Leaching Procedure
E	SW Method 1310A Extraction Procedure (EP) Toxicity Test
A	Air

Table 4-9. Values Used for Entry of Quality Control Samples

<u>QC Sample Type</u>	<u>Matrix</u>	<u>Qccode</u>	<u>Expected</u>
Blank Spike	xQ	BS1	[Amount added]
Blank Spike Duplicate	xQ	BD1	[Amount added]
Lab Blank	xQ	LB1	0
Lab Matrix Spike	[Actual]	MS1	[Amount added + amount measured in sample]
Lab Matrix Spike Duplicate	[Actual]	SD1	[Amount added + amount measured in sample]
Lab Replicate	[Actual]	LR1	[Concentration amount in the original sample]
Reference Material	xQ	RM1	[Amount present in reference material]
Reference Material	xQ	KD1	[Amount present in Duplicate reference material duplicate]
Continuing Calibration xQ		CC1	[Amount added]
Initial Calibration	xQ	IC1	[Amount added]

x - Use of WQ, SQ, AQ, or TQ for aqueous, solid, gaseous, and tissue quality control samples is recommended if data is intended for conversion from EDF to IRPIMS, but are not required.

Entering a Non-COE Sample Test:

“Non-COE Sample” tests are entered into the program in the same fashion as the “COE Samples” except that the “Qccode” is “NC” instead of “CS” and not all of the information is required (i.e., chain-of-custody number). The following example presents entry of a “Non-COE Sample”.

Example:

Labsampid	Type 9500-01 and press [Enter]
Qccode	NC will appear in this field automatically
Method	Press [F2] to select SW8020 and press [Enter]
Modparlist	Type F and press [Enter]
Exmcode	Press [F2] to select SW5030 and press [Enter]
Lablotctl	Type 8020-0102 and press [Enter]
Anadate	Type 010295 [Enter]
Extdate	Type 010295 [Enter]
Run_num	Type 1 [Enter]
Recdate	Type 010295 [Enter]
Cocnum	Type CL-9501 [Enter]
Basis	Press [F2] to select N and press [Enter]
Prescode	Press [F2] to select P05 and press [Enter]
Sub	Press [F2] to select NA and press [Enter]
Rep_date	Not accessible
Lab_repno	Not accessible
Apprvd	Not accessible
Lnote	Press [F2] select CH and press [Enter]

Quality Assurance Test

Quality Assurance Entry tests are entered in the same fashion as the “COE Samples” and “Non-COE Samples” except that some of the chain-of-custody information is not necessary to complete the record and the “Qccode” is something other than “CS” or “NC”.

Example:

Labsampid	Type MB-0102 and press [Enter]
Qccode	Type LB1 and press [Enter]
Method	Press [F2] to select SW8020 and press [Enter]
Modparlist	Type F and press [Enter]
Exmcode	Press [F2] to select SW5030 and press [Enter]
Lablotctl	8020-0102 will appear in this field automatically
Anadate	Type 010295 [Enter]
Extdate	Type 010295 [Enter]
Run_num	Type 1 [Enter]
Recdate	Type 010295 [Enter]
Cocnum	Type CL-9501 [Enter]
Basis	Press [F2] to select N and press [Enter]
Prescode	Press [Enter]
Sub	Press [F2] to select NA and press [Enter]
Rep_date	Not accessible
Lab_repno	Not accessible
Apprvd	Not accessible
Lnote	Press [Enter]

Entering a Field Prepared Test (e.g., AK101):

The State of Alaska Method 101 for the Determination of Gasoline-Range Organics requires field preparation for soil and solid samples. This preparation is the addition of a methanol solution (containing appropriate surrogates) to the soil sample. This procedure is not always performed, therefore it is necessary to distinguish between times when it is performed and when it is not. The *EXMCODE* field is used for this purpose. If the sample was prepared in the field, use “AK101PR” in the *EXMCODE* field. If the sample was not prepared in the field, use “METHOD” in the *EXMCODE* field.

Example:

The following example assumes the sample was prepared in the field.

Labsampid	Type 9500-01 and press [Enter]
Qccode	CS will appear in this field automatically
Method	Press [F2] to select AK101 and press [Enter]
Modparlist	Type F and press [Enter]
Exmcode	Press [F2] to select AK101PR and press [Enter]
Lablotctl	Type 101-0102 and press [Enter]
Anadate	Type 010295 [Enter]
Extdate	Type 010295 (date was prepared in field) [Enter]
Run_num	Type 1 [Enter]
Reccdate	Type 010295 [Enter]
Cocnum	Type CL-9501[Enter]
Basis	Press [F2] to select D and press [Enter]
Prescode	Type P13 and press [Enter]
Sub	Press [F2] to select NA and press [Enter]
Rep_date	Type 010395 [Enter]
Lab_repno	Type 010395-01 and press [Enter]
Apprvd	Type KDW and press [Enter]
Lnote	Press [Enter]

NOTE: If field preparation was conducted, the *EXTDATE* is the date of field preparation.

Entering a COE Sample Result:

To enter the remaining analytes, the user may use the copy record function. This function will copy down the result record from the previous line. To use this function use the [down arrow] to bring the pointer to the next results record.

Example:

Assume that the result is from SW-846 method 8020.

Analyte	Press [F3], the 8020 method list will appear with Benzene at the top, press [Enter]
Descriptn	Benzene will appear in this field automatically
Qualifier	Press [F2], select =, press [Enter]
Result	Type 25 [Enter]
Lab DL	Type 0.2 [Enter]
Rep DL	Type 1 [Enter]
Rep Qual	Press [F2], select PQL and press [Enter]
Uncertainty	No entry is necessary
Units	Press [F2], select UG/L and press [Enter]
PVC Code	Press [F2], select PR and press [Enter]
Rt	No entry is necessary [Enter]
Dilution	Type 1 [Enter]
Clevdate	No entry is necessary [Enter]
Srm	Press [F2], select SUPELCO and press [Enter]
Lnote	No entry is necessary [Enter]

Click on the “OK” button at the top of the screen.

NOTE: Significant figures are tracked by the software, so that “400.0” is seen as 4 significant figures and “400.” is seen as 3 significant figures. If the user types “400” into the *PARVAL* field, “400” is returned. If “400.0” is typed, “400.0” is returned. No extra zeros are attached to any number field in this version of COELT.

Entering a COE Sample Dioxin Result:

Dioxin results require entry in the “Uncertainty” and “Retention Time” fields. Use the “Uncertainty” field to record the Ion Abundance Ratio.

Example:

Assume that the result is from method SW8290.

Analyte	Press [F3], to select HXCBPH224456, press [Enter]
Descriptn	2,2,4,4,5,6-Hexachlorobiphenyl will appear in this field automatically
Qualifier	Press [F2], select =, press [Enter]
Result	Type 25.0 [Enter]
Lab DL	Type 1.1 [Enter]
Rep DL	Type 5.5 [Enter]
Rep Qual	Press [F2], select PQL and press [Enter]
Uncertainty	Type 1.23 [Enter]
Units	Press [F2], select PG/L and press [Enter]
PVC Code	Press [F2], select PR and press [Enter]
Rt	Type 23.4 [Enter]
Dilution	Type 1 [Enter]
Clrevdate	No entry is necessary [Enter]
Srm	Press [F2], select NA and press [Enter]
Lnote	No entry is necessary [Enter]

Click on the “OK” button at the top of the screen.

Common problems with Non-COE Samples:

If a “Non-COE Sample” is in the “Partial Non-COE Samples” section of the program with a status of invalid, it will generally be attributed to one or more of the following:

- Missing required fields (refer to the *EDF*).
- Date inconsistency between preparation date (Extdate) and analysis date (Anadate). These dates should appear as preparation date less than or equal to analysis date.
- The surrogates and/or internal standards require “Clevdates” (control limit revision dates).
- Incomplete Method list. (Refer to Appendix B.)
- Surrogates and internal standards require units of “Percent.”

Common Problems with QC Entries:

If a “QC Entry” is in the “Partial QC Entries” section of the program with a status of invalid, it will generally be attributed to one or more of the following:

- Missing required fields (refer to the *EDF*).
- Date inconsistency between preparation date (Extdate) and analysis date (Anadate). These dates should appear as preparation date less than or equal to the analysis date.
- Matrix spikes, blank spikes, lab replicates, continuing calibrations, initial calibrations, standard reference material, internal standards, and surrogates require “Clevdates” (control limit revision dates).
- Surrogates and internal standards require percent units.
- The referenced sample (Labrefid) needs to be present in the “COE Samples” or “Non-COE Samples” for matrix spikes and laboratory replicates.
- The “Expected” field requires a value for matrix spikes, blank spikes, continuing calibrations, initial calibrations, and standard reference material (on spiked parameters only [sample result plus spike amount]).

Table 5-3. Sample Section Field Definitions

<u>Field Name</u>	<u>Definition</u>
Sampid	FIELD ASSIGNED SAMPLE NUMBER - The number assigned to the sample at the time of collection.
Labcode [F2]	LABORATORY - The code identifying the laboratory receiving the sample.
Matrix [F2]	MATRIX - The medium or make-up of the sample.
Logdate	SAMPLE COLLECTION DATE - The date that the sample is collected.
Logtime	SAMPLE COLLECTION TIME - The time that the sample is collected.
Projname	PROJECT NAME - COE-assigned project name.
Cnt. Sheet #	CONTROL SHEET NUMBER - COE-assigned administrative number.
Npdlwo	WORK ORDER NUMBER - COE-assigned work order number.
Logcode [F2]	SAMPLE COLLECTION COMPANY - The company that collected the sample or performed the field test.
Locid	LOCATION - The location from which the sample is collected.

Table 5-4. Test Section Field Definitions (continued)

<u>Field</u>	<u>Definition</u>
Recdate	RECEIVED DATE - The date that the laboratory physically assumes custody of the sample.
Cocnum	CHAIN-OF-CUSTODY NUMBER - The number assigned to the chain-of-custody.
Basis [F2]	BASIS - Wet or Dry (Basis for Soil Samples). This field also carries information regarding filtration and leaching procedures.
Prescode	PRESERVATIVE CODE - The code(s) identifying the type of preservative added to the sample.
Sub [F2]	SUBCONTRACTED LABORATORY - The Labcode of the subcontracted laboratory.
Rep_date	REPORT DATE - The date of the laboratory report.
Lab_repno	LABORATORY REPORT NUMBER - The laboratory-assigned number uniquely identifying the hard copy report.
Apprvd	APPROVED BY - The initials of the individual approving the laboratory report.
Lnote	LABORATORY NOTES - Analytical notes providing descriptive information.

Table 5-5. Results Section Field Definitions (continued)

<u>Field</u>	<u>Definition</u>
Units	UNITS - The units of measure used to report a result.
PVC Code	PRIMARY VALUE CODE - The code identifying whether a sample result is a primary or a confirmatory value.
Rt	RETENTION TIME - The retention time of a tentatively identified compound.
Dilution	DILUTION FACTOR - Numeric factor indicating level of sample dilution.
Clevdate	CONTROL LIMIT REVISION DATE - The date limits were established for a given parameter.
SRM [F2]	STANDARD REFERENCE MATERIAL - A code identifying the source of the reference material for the calibration method.
Lnote [F2]	LABORATORY NOTES - Analytical notes providing descriptive information.
Labrefid*	LABORATORY REFERENCE IDENTIFICATION - The laboratory- assigned reference sample identification number.
Expected*	EXPECTED PARAMETER VALUE - The target result for a quality control sample or surrogate spike (sample result plus spike amount).

* These fields are present in the results section when the sample type is QC entries.

Table 6-1. Integrated Field Order

<u>Field Name</u>	<u>Definition</u>
LOCID	The location from which the sample is collected.
LOGDATE	The date the sample is collected.
LOGTIME	The time the sample is collected.
LOGCODE	The company that collects the sample.
SAMPID	The number assigned to the sample at time of collection.
MATRIX	The medium or makeup of a sample.
PROJNAME	COE-assigned project name.
NPDLWO	COE-assigned work order number.
CNTSHNUM	The control sheet number assigned by the COE.
LABCODE	Code identifying the lab generating the report.
LABSAMPID	The identification number assigned to the sample by the laboratory.
QCCODE	The code identifying laboratory-generated quality control samples.
ANMCODE/ METHOD	The code identifying the analytical method of analysis.
MODPARLIST	A field indicating whether the parameter list of an analytical method has been modified.
EXMCODE	A code identifying the method of preparation.
LABLOTCTL	A number identifying a group of samples prepared together.
ANADATE	The date the sample is analyzed.
EXTDATE	The date a sample is prepared or extracted.
RUN_NUMBER	The numeric code distinguishing multiple analyses of a sample by the same method.
RECDATE	The date the lab physically assumes custody of the sample.
COCNUM	The number assigned to the chain-of-custody.
BASIS	Basis (wet or dry) for soil samples. Also carried in this field is information regarding filtration and leaching procedures.
PRESCODE	The code(s) identifying the type of preservative added to the sample.
SUB	The labcode of the subcontracted laboratory.

Table 6.2. Separate (Relational) Sample Field Order

<u>Field Name</u>	<u>Definition</u>
LOCID	The location from which the sample is collected.
LOGDATE	The date the sample is collected.
LOGTIME	The time the sample is collected.
LOGCODE	The company that collects the sample.
SAMPID	The number assigned to the sample at the time of collection.
MATRIX	The medium or makeup of a sample.
PROJNAME	The COE-assigned project name.
NPDLWO	The COE-assigned work order number.
CNTSHNUM	The control sheet number assigned by the COE.
LABCODE	The code identifying the lab generating the report.

Table 6-3. Separate (Relational) Test Field Order

<u>Field Name</u>	<u>Definition</u>
LOCID	The location from which the sample is collected.
LOGDATE	The date the sample is collected.
LOGTIME	The time the sample is collected.
LOGCODE	The company that collects the sample.
SAMPID	The number assigned to the sample at time of collection.
MATRIX	The medium or makeup of a sample.
LABCODE	The code identifying the lab generating the lab report.
LABSAMPID	The identification number assigned to the sample by the laboratory.
QCCODE	The code identifying laboratory-generated quality control samples.
ANMCODE/METHOD	The code identifying the analytical method of analysis.
MODPARLIST	The field indicating whether the parameter list of an analytical method has been modified.
EXMCODE	The code identifying the method of preparation.
LABLOTCTL	The number identifying a group of samples.
ANADATE	The date the sample is analyzed.
EXTDATE	The date a sample is prepared or extracted.
RUN_NUMBER	The numeric code distinguishing multiple analyses of a sample by the same method.
RECDATE	The date the lab physically assumes custody of the sample.
COCNUM	The number assigned to the chain-of-custody.
BASIS	The basis for soil samples. Also carried in this field is information regarding filtration and leaching procedures.
PRESCODE	The code(s) identifying the type of preservative added to a sample.
SUB	The labcode of the subcontracted lab.
REP_DATE	The date of the lab report.
LAB_REPNO	The lab-assigned number uniquely identifying the hard copy report.
APPRVD	The initials of the individual approving the laboratory report.
LNOTE	The analytical notes providing descriptive information.

10.0 Electronic Deliverables

The export feature moves the data from the database into a standardized, digital format. Transmitting data electronically in the EDF format eliminates the need for laborious reentry of hard copy laboratory data by the end user. The errors that can be generated by reentering data are also eliminated, increasing the efficiency and reliability of data transmission.

Checking the Electronic Deliverable Format

Each electronic report exported from COELT must be verified using the Electronic Deliverable Consistency Checker (EDCC) program. This program is available on the AKD FTP site, and instructions for its use are presented in the *Electronic Deliverable Format (EDF)* document.

Report Formats

The COELT program is capable of printing out several different types of reports, depending on the data associated with a particular laboratory report number. The types of reports available for printing are listed in Table 11-1.

Method Groups

There are four basic types of formats for reporting standard results. These formats assigned by COELT are based upon the method that is to be reported. These types of formats are described in Table 11-2 and the methods associated with each report type are presented in Appendix E. Method groups are preassigned by the COELT program and do not require user selection.

Calculations

Many of the Quality Control Reports print out COELT calculated values for comparison to quality control criteria. There are two basic calculations that COELT performs. The general calculations are listed below. For the specific type of quality assurance sample, refer to Appendix D. (**NOTE:** For negative result values, some calculations will not function as described below [e.g., percent recovery is calculated using absolute values when negative results are involved]. This is only an issue on COELT reports containing calculated values. The electronic data is not affected.)

Percent Recovery

$$\frac{\text{spike result} - \text{sample result}}{\text{spike level}} * 100 = \% \text{ Recovery}$$

Relative Percent Difference

$$\frac{[\text{result} - \text{duplicate result}]}{[\text{result} + \text{duplicate result}] / 2} * 100 = \text{RPD}$$

Significant Figures: COELT tracks significant figures for calculation purposes in the following manner: zeros used to hold places to either side of the decimal point are not considered significant (e.g., 0.01 and 100 both have only one significant figure). Any zeros to the right of a decimal point are considered significant (e.g., 100.0 has 4 significant figures). To make the number 100 be seen as having 3 significant figures, the user must place a decimal point after it (e.g., 100.).

Rounding: For calculated fields, numbers are rounded based on the following rules:

1. If the number to the right of the last significant figure is greater than 5, the last significant figure is rounded up (e.g., 101.6 becomes 102 to make 3 significant figures).
2. If the number to the right of the last significant figure is less than 5, the last significant figure remains unchanged (e.g., 101.2 becomes 101 to make 3 significant figures).
3. If the number to the right of the last significant figure is exactly 5, the last significant figure is rounded up (e.g., 101.5 becomes 102 to make 3 significant figures).
4. When there are several numbers to the right of the last significant figure, the numbers are considered as a group, using the above rules (e.g., to make 3 significant figures, 101.498 becomes 101, because (498) is less than 5, and 101.512 becomes 102, because (512) is greater than 5).

COELT does not perform any other data calculations or dilution adjustments on the laboratory reports. (Refer to Chapter 5 for user-initiated dilution adjustments.)

If a percent recovery value is too large for the space on the report, the number will wrap in such a way that the number of significant figures will be preserved and any additional figures to the LEFT of the decimal point that do not fit will be wrapped below the number. An example of this follows:

If the percent recovery is calculated to be 12345.6 (there is only room for 4 spaces), the number will print as

12.6
345

This wrapping only occurs in calculated fields.

Table 11-1. Report Formats

<u>Report Format</u>	<u>Description</u>
Project Overview	Laboratory Report Cover Page
Narrative	Text Comments
Report Summary	Summary of Samples Analyzed
CS Report A	COE Sample Analytical Results for a Single Method
CS Report B	COE Sample Analytical Results for Multiple Methods
CS Radio-chemistry	COE Sample Analytical Results for a Single Radiochemistry Method
CS Dioxin	COE Sample Analytical Results for a Single Dioxin Method
MB Report A	Method Blank Results for a Single Method
MB Report B	Method Blank Results for Multiple Methods, Dioxin, and Radiochemistry Methods
Reagent Blank Report A	Reagent Blank Results for a Single Method
Reagent Blank Report B	Reagent Blank Results for Multiple Methods, Dioxin, and Radiochemistry Methods
Lab Rep Report	Laboratory Replicate Report
MS/MSD Report	Matrix Spike/Matrix Spike Duplicate Report
BS/BSD Report	Blank Spike/Blank Spike Duplicate Report
RM/RMD Report	Reference Material/Reference Material Duplicate Report
ICV Report	Initial Calibration Verification Report
CCV Report	Continuing Calibration Verification Report
Code List	List of codes used on reports

Table 11-2. COELT-Assigned Report Formats

<u>Report Type</u>	<u>Description</u>
A	Report format supporting a single method.
B	Report format supporting multiple methods (e.g., metals and wet chemistry results).
Radiochemistry	Report format supporting a single radiochemistry method (e.g., gross alpha radiation).
Dioxin	Report format supporting a single dioxin method.

Data Management

Deleting an Import Batch

1. Enter the batch number in the window under “Delete Import Batch#”.
2. Click on the “Trash Can” icon.

Note: This should not be done unless the data has been exported and sent to AKD or the user wishes to re-import a modified version of the import batch.

Tip: Backup the COELT databases prior to deleting import batches.

Deleting a Report

1. Enter the report number in the field.
2. Click on the “Trash Can” icon.

Note: This should not be done unless the data has been exported and sent to AKD with a hard-copy report and the user is confident that changes to the data will no longer be necessary.

13.0 Glossary

ACCURACY - The closeness of agreement between an observed value and an accepted reference value. When applied to a set of observed values, accuracy will be a combination of a random component and of a common systematic error (or bias) component.

ANADATE (Analysis Date) - The date a sample or extract is analyzed in a laboratory.

ANALYTE - A Parameter Label (PARLABEL) associated with a given parameter.

ANMCODE (Analytical Method) - The code identifying the method of analysis by which the sample was analyzed.

APPRVD (Approved By) - Initials of the individual approving the laboratory report.

ATTRIBUTES - The characteristics of a given field, such as the length and type of field (e.g., date, character, or numeric).

BASIS (Basis) - Identifies the basis (W = wet, D=dry, F = field filtered, L = lab filtered, or N = no filtered) on which analytical results are reported for all matrices. The basis for tissue, soil, sludge, and sediment samples may be W or D. The *BASIS* field is also used for information regarding leaching procedures. Refer to Table 4-8 for "Basis" codes.

BATCH - A group of samples which have been handled similarly with respect to the testing procedures being employed and which are processed as a unit.

CLCODE (Control Limit Code) - Defines the type of quality control limits (e.g., matrix spike percent recovery).

CLREVDATE (Control Limit Revision Date) - The date a quality control limit is established.

CNTSHNUM (Control Sheet Number) - COE-assigned administrative number.

METHOD DETECTION LIMIT (MDL) - The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix type containing the analyte.

MODPARLIST (Modified Parameter List) - A field indicating whether the compound list of a method has been amended. If the parameter list is modified, enter T (True) into this field. Modifications include the deletion of compounds from the list.

NON-COE SAMPLE - A sample used for assessing the quality of results from a quality assurance batch that contains a COE Sample. This sample is not a COE sample, but a sample submitted by some other laboratory customer.

NPDWNO (Work Order Number) - COE-assigned administrative number.

pH - A measure of acidity or alkalinity expressed as $-\log_{10}$ [hydrogen ion concentration].

PARENT TABLE - The “one” table of a one-to-many records relationship between two tables.

PARLABEL (Parameter Label) - The code assigned to a measurement parameter. The code is generally a common acronym representing the parameter or analyte. The PARLABEL is used in the database instead of the full analyte name to reduce the error inherent in transferring large names with numbers, commas and spaces.

PARTIAL COE SAMPLES - A COE sample containing incomplete or invalid information.

PARTIAL NON-COE SAMPLES - A Non-COE Sample containing incomplete or invalid information.

PARTIAL QC ENTRIES - A QC Entry containing incomplete or invalid information.

APPENDIX A: COELT/EDF FIELD CROSS-REFERENCE

<u>COELT FIELD</u>	<u>EDF FIELD</u>	<u>DEFINITION</u>
ANADATE	ANADATE	The date the sample is analyzed.
ANALYTE	PARLABEL	Parameter label associated with a given parameter.
APPRVD	APPRVD	The initials of the individual approving the laboratory report.
BASIS	BASIS	Basis (Wet or Dry) for soil samples; Field Filtered, Lab Filtered, or Not Filtered for water samples. This field is also used to indicate leaching procedures.
CLCODE	CLCODE	Code identifying the type of control limit.
CLREVDAT	CLREVDAT	The date assigned to the control limit for a given parameter.
CNTSHEET#	CNTSHNUM	A COE-assigned administrative number.
COCNUM	COCNUM	The number assigned to the chain-of-custody.
DESCRIPTN		The description of the analyte field.
DILUTION	DILFAC	Numeric factor indicating level of sample dilution.
EXLABLOT	EXLABLOT	Obsolete field.
EXMCODE	EXMCODE	Code identifying the extraction or digestion method.
EXPECTED	EXPECTED	The target result for a quality control sample or surrogate spike.
EXTDATE	EXTDATE	The date a sample is prepared or extracted.
LABCODE	LABCODE	Code identifying the lab generating the report.
LABDL	LABDL	The laboratory-established method detection limit.
LABLOTCTL	LABLOTCTL	A number identifying a group of samples extracted or analyzed together.
LABREFID	LABREFID	The laboratory-assigned reference sample identification number.
LABREPNO	LABREPNO	The laboratory-assigned number uniquely identifying the hard copy report.
LABSAMPID	LABSAMPID	The identification number assigned to the sample by the laboratory.
LNOTE	LNOTE	Analytical notes providing descriptive information.

APPENDIX A: COELT/EDF FIELD CROSS-REFERENCE (continued)

<u>COELT FIELD</u>	<u>EDF FIELD</u>	<u>DEFINITION</u>
LOCID	LOCID	The location from which the sample is collected.
LOGCODE	LOGCODE	The company that collects the sample.
LOGDATE	LOGDATE	The date the sample is collected.
LOGTIME	LOGTIME	The time the sample is collected.
MATRIX	MATRIX	The medium or makeup of a sample.
METHOD	ANMCODE	The code identifying the analytical method of analysis.
MODPARLIST	MODPARLIST	A field indicating whether the parameter list of an analytical method has been modified.
NPDLWO	NPDLWO	COE-assigned administrative number.
PRESCODE	PRESCODE	The codes identifying the type of preservative added to the sample.
PROJNAME	PROJNAME	COE-assigned project name.
PVCCODE	PVCCODE	The code identifying whether a value is primary or confirmatory.
QCCODE	QCCODE	The code identifying laboratory-generated quality control samples.
QUALIFIER	PARVQ	A code for qualifying analytical results.
RECDATE	RECDATE	The date the lab physically assumes custody of the sample.
REPDATE	REPDATE	The date of the lab report.
REPDL	REPDL	The detection limit reported by the lab to determine whether a parameter is detectable.
REPQUAL	REPDLVQ	A code identifying the type of reporting limit (i.e., practical quantitation limit, PQL).
RESULT	PARVAL	The analytical value for a compound or analyte.
RT	RT	The retention time of a tentatively identified compound.

Entering a COE Sample Test:

If sample MW-1 was analyzed using Solid and Hazardous Waste Method 8020, it would be entered as listed below.

Labsampid	Type 9500-01 and press [Enter]
Qccode	CS will appear in this field automatically
Method	Press [F2] to select SW8020 and press [Enter]
Modparlist	Type T and press [Enter]
Exmcode	Press [F2] to select SW5030 and press [Enter]
Lablotctl	Type 8020-0102 and press [Enter]
Anadate	Type 010295 [Enter]
Extdate	Type 010295 [Enter]
Run_num	Type 1 [Enter]
Recdate	Type 010295 [Enter]
Cocnum	Type CL-9501 [Enter]
Basis	Press [F2] to select N and press [Enter]
Prescode	Press [F2] to select P05 and press [Enter]
Sub	Press [F2] to select NA and press [Enter]
Rep_date	Type 010395 [Enter]
Lab_repno	Type 010395-01 and press [Enter]
Apprvd	Type ABC and press [Enter]
Lnote	Press [F2] select CH and press [Enter]

Note: The parameter list has been modified (Modparlist = T) for ease of moving from one type of example to the next. For all examples presented in Appendix C, the SW8020 list will consist of one compound, Benzene.

Quality Assurance Test For Method Blank:

Labsampid	Type MB-0102 and press [Enter]
Qccode	Type LB1 and press [Enter]
Method	Press [F2] to select SW8020 and press [Enter]
Modparlist	Type T and press [Enter]
Exmcode	Press [F2] to select SW5030 and press [Enter]
Lablotctl	8020-0102 will appear in this field automatically
Anadate	Type 010295 [Enter]
Extdate	Type 010295 [Enter]
Run_num	Type 1 [Enter]
Recdate	Type 010295 [Enter]
Basis	Press [F2] to select N and press [Enter]
Prescode	No entry is necessary [Enter]
Sub	Press [F2] to select NA and press [Enter]
Lnote	No entry is necessary [Enter]

Quality Assurance Test For Matrix Spike:

Labsampid	Type MS-0102 and press [Enter]
Qccode	Type MS1 and press [Enter]
Method	Press [F2] to select SW8020 and press [Enter]
Modparlist	Type T and press [Enter]
Exmcode	Press [F2] to select SW5030 and press [Enter]
Lablotctl	8020-0102 will appear in this field automatically
Anadate	Type 010295 [Enter]
Extdate	Type 010295 [Enter]
Run_num	Type 1 [Enter]
Recdate	Type 010295 [Enter]
Basis	Press [F2] to select N and press [Enter]
Prescode	No entry is necessary [Enter]
Sub	Press [F2] to select NA and press [Enter]
Lnote	No entry is necessary [Enter]

Quality Assurance Test For Matrix Spike Duplicate:

Labsampid	Type MSD-0102 and press [Enter]
Qccode	Type SD1 and press [Enter]
Method	Press [F2] to select SW8020 and press [Enter]
Modparlist	Type T and press [Enter]
Exmcode	Press [F2] to select SW5030 and press [Enter]
Lablotctl	8020-0102 will appear in this field automatically
Anadate	Type 010295 [Enter]
Extdate	Type 010295 [Enter]
Run_num	Type 1 [Enter]
Reccdate	Type 010295 [Enter]
Basis	Press [F2] to select N and press [Enter]
Prescode	No entry is necessary [Enter]
Sub	Press [F2] to select NA and press [Enter]
Lnote	No entry is necessary [Enter]

Quality Assurance Test for Blank Spike:

Labsampid	Type LCS-0102 and press [Enter]
Qccode	Type BS1 and press [Enter]
Method	Press [F2] to select SW8020 and press [Enter]
Modparlist	Type T and press [Enter]
Exmcode	Press [F2] to select SW5030 and press [Enter]
Lablotctl	8020-0102 will appear in this field automatically
Anadate	Type 010295 [Enter]
Extdate	Type 010295 [Enter]
Run_num	Type 1 [Enter]
Recdate	Type 010295 [Enter]
Basis	Press [F2] to select N and press [Enter]
Prescode	No entry is necessary [Enter]
Sub	Press [F2] to select NA and press [Enter]
Lnote	No entry is necessary [Enter]

Quality Assurance Test For Lab Replicate:

Labsampid	Type LR-0102 and press [Enter]
Qccode	Type LR1 and press [Enter]
Method	Press [F2] to select SW8020 and press [Enter]
Modparlist	Type T and press [Enter]
Exmcode	Press [F2] to select SW5030 and press [Enter]
Lablotctl	8020-0102 will appear in this field automatically
Anadate	Type 010295 [Enter]
Extdate	Type 010295 [Enter]
Run_num	Type 1 [Enter]
Recdate	Type 010295 [Enter]
Basis	Press [F2] to select N and press [Enter]
Prescode	No entry is necessary [Enter]
Sub	Press [F2] to select NA and press [Enter]

Quality Assurance Test for Initial Calibration:

Labsampid	Type IC-0102 and press [Enter]
Qccode	Type IC1 and press [Enter]
Method	Press [F2] to select SW8020 and press [Enter]
Modparlist	Type T and press [Enter]
Exmcode	Press [F2] to select SW5030 and press [Enter]
Lablotctl	8020-0102 will appear in this field automatically
Anadate	Type 010295 [Enter]
Extdate	Type 010295 [Enter]
Run_num	Type 1 [Enter]
Recdate	Type 010295 [Enter]
Basis	Press [F2] to select N and press [Enter]
Prescode	No entry is necessary [Enter]
Sub	Press [F2] to select NA and press [Enter]
Lnote	No entry is necessary [Enter]

Quality Assurance Test for Continuing Calibration:

Labsampid	Type CC-0102 and press [Enter]
Qccode	Type CC1 and press [Enter]
Method	Press [F2] to select SW8020 and press [Enter]
Modparlist	Type T and press [Enter]
Exmcode	Press [F2] to select SW5030 and press [Enter]
Lablotctl	8020-0102 will appear in this field automatically
Anadate	Type 010295 [Enter]
Extdate	Type 010295 [Enter]
Run_num	Type 1 [Enter]
Recdate	Type 010295 [Enter]
Basis	Press [F2] to select N and press [Enter]
Prescode	No entry is necessary [Enter]
Sub	Press [F2] to select NA and press [Enter]
Lnote	No entry is necessary [Enter]

Quality Assurance Test for Known Reference Material:

Labsampid	Type KM-0102 and press [Enter]
Qccode	Type KM1 and press [Enter]
Method	Press [F2] to select SW8020 and press [Enter]
Modparlist	Type T and press [Enter]
Exmcode	Press [F2] to select SW5030 and press [Enter]
Lablotctl	8020-0102 will appear in this field automatically
Anadate	Type 010295 [Enter]
Extdate	Type 010295 [Enter]
Run_num	Type 1 [Enter]
Recdate	Type 010295 [Enter]
Basis	Press [F2] to select N and press [Enter]
Prescode	No entry is necessary [Enter]
Sub	Press [F2] to select NA and press [Enter]
Lnote	No entry is necessary [Enter]

APPENDIX D: Calculations

Matrix Spikes

Percent Recovery for Matrix Spikes

$$\frac{\text{spike result (MS)} - \text{sample result}}{\text{spike level}} * 100 = \% \text{ Recovery}$$

Relative Percent Difference for Matrix Spike/Matrix Spike Duplicates

$$\frac{[\text{matrix spike recovery (MS)} - \text{matrix spike duplicate recovery (DMS)}]}{[\text{matrix spike recovery (MS)} + \text{matrix spike duplicate recovery (DMS)}] / 2} * 100 = \text{RPD}$$

Where [matrix spike recovery (MS) - matrix spike duplicate recovery (DMS)] is an absolute value.

Note: If internal laboratory matrix spike recovery result does not reflect the COELT result, refer to the value entered into the “Expected” field. The “Expected” field should contain a value equivalent to the sample result plus the spike level.

COELT and EDCC Version 1.2a

Program Installation Instructions

Enclosed are installation disks for COELT 1.2a (4 disks), EDCC 1.2a (3 disks), and the most current valid value update, “EDF Valid Value Update” (1 disk).

Program Installation:

Installing COELT and EDCC:

Installing with Microsoft Windows 3.11

1. Start Microsoft Windows.
2. Place “Disk 1” in the 3.5-inch floppy disk drive.
3. Open the Program Manager.
4. Click on “File” and, while holding the mouse button down, drag the cursor down until “Run...” is highlighted.
5. A “Run” screen will appear.
6. If the floppy disk is in the “A” drive, the user should type [a:\setup].
7. Click on the “OK” button.
8. Follow on-screen instructions to determine when to put the remaining disks into the disk drive.

Installing with Microsoft Windows95

1. Click on the “Start” button.
2. Place “Disk 1” in the 3.5-inch floppy disk drive.
3. Click on “Run” and type [a:\setup].
4. Click on the “OK” button.
5. Follow on-screen instructions to determine when to put the remaining disks into the disk drive.

Valid Value Update Installation:

To Install the Update:

1. Place the disk labeled “EDF Valid Value Update” in the 3.5-inch floppy disk drive.
2. From the DOS prompt (c:\>), determine the location of the EDCC and COELT on the computer.
3. Type [update (space) *edcc location* (space) *coelt location*] [Enter].
4. A message will appear on the screen indicating that the update has been successful.

Example:

If the EDCC resides in the EDCC directory on the c:\drive and the COELT resides in the COELT directory on the c:\drive, the valid values would be updated using the following command:

update c:\edcc c:\coelt [Enter]