The Electronic Deliverable Format (EDF)

Version 1.2i

GUIDELINES & RESTRICTIONS

April 2001

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Acronyms

ASCII	American Standard Code (for) Information Interchange
CAS	Chemical Abstract Service
CL	Control Limit
COC	Chain-of-Custody
COELT	U.S. Army Corps of Engineers Loading Tool
CSV	Comma Separated Values (AKA Comma/Quote Delimited)
EDCC	Electronic Deliverable Consistency Checker
EDD	Electronic Data Deliverable
EDF	Electronic Deliverable Format
FK	Foreign Key
GIS	Geographic Information System
LIMS	Laboratory Information Management System
NA	Not Applicable
NC	Non-Client
ND	Non-Detected
PK	Primary Key
QA	Quality Assurance
QC	Quality Control
RPD	Relative Percent Difference
VVL	Valid Value List

1 Introduction

The Electronic Deliverable Format (EDF), Version 1.2i, April 2001, is a comprehensive data standard designed to facilitate the transfer of electronic data files between data producers and data users. Laboratories can produce the EDF_LAB (the laboratory electronic data deliverable [EDD]) (here after refered to as EDF) using the U.S. Army Corps of Engineers Loading Tool (COELT) software, or EDF may be produced with other programs outside of COELT.

The EDF data components include:

- Chain-of-Custody (COC) Information
  - sample collection information
  - administrative information
  - preservatives added to the samples
  - conditions of transport
- Laboratory Results Information
  - tests performed
  - parameters tested
  - analytical results
- Quality Assurance (QA) Information (key to data verification)
  - detection limits
  - control limits for precision and accuracy
  - narrative report explaining non-conformances
- Built-in Guidelines and Restrictions
- Valid Value Lists (VVLs)

The EDF may be used for the production of hard copy reports, electronic data review, or data summaries. The EDF is the absolute electronic reflection of the legally defensible hard copy laboratory report produced with COELT.

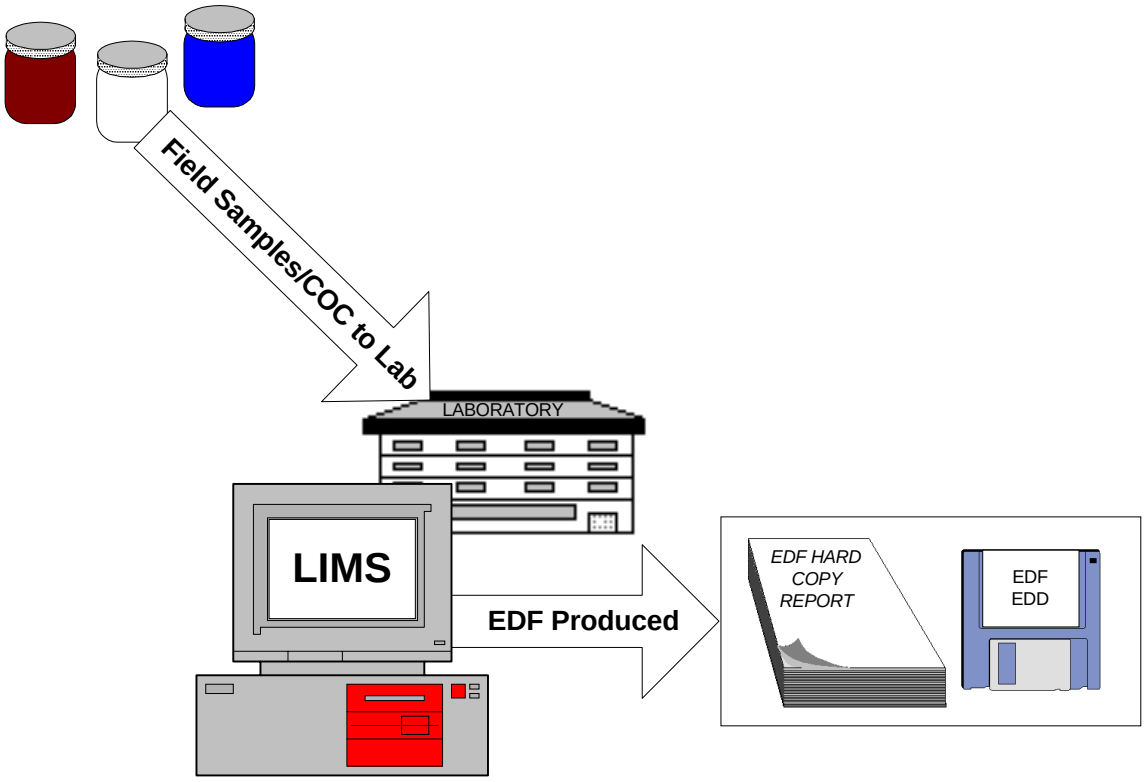


Figure 1: From Field to EDF

1.1 Key Concepts

The benefits of using the EDF data standard include:

- Provides a comprehensive data standard for analytical laboratories, allowing different laboratories to provide consistent reporting parameters.
- Provides an efficient industry-wide, universal standard for electronic analytical data.
- Promotes the highest potential of data for transfer, review, and interpretation by multiple parties associated with current and future projects.
- Eliminates laborious and costly manual re-entry of hard copy laboratory data, which often results in transcription errors.
- May be produced by entering data manually, or by importing data directly from a Laboratory Information Management System (LIMS).
- Provides guidelines and restrictions that help reduce data entry errors and inconsistencies.
- Legally defensible hard copy reports can be generated directly from the electronic data in a standardized format.
- Presents quality assurance/quality control (QA/QC) information for each laboratory report, that is the key to data verification.

- Provides guardianship of catalogued VVLs, assuring universal consistency among users.
- Provides an electronic project archive of known quality, with historical data that are easily accessible and efficiently reviewed by different parties, for use in future environmental projects.
- Promotes dynamic growth of institutional knowledge between laboratories, consultants, their clients, and agencies.

1.2 Document Conventions

This document presents the structure of the EDF and guidelines and restrictions for creating an EDF EDD. Each data file is discussed in a level of detail that assists a laboratory in creating an EDF EDD that meets the criteria of the data standard. Included is a discussion of guidelines and restrictions that apply to files and those that apply to individual fields. This is a very technical document. For a more narrative description of EDF, please refer to *The Laboratory Electronic Deliverable Format (EDF), Version 1.2i, Overview* document.

1.2.1 Figure Representation of Files

Each file discussion begins with a figure representing the fields in the file. Refer to Figure 2 as an example. The fields are listed in the order in which they exist within the structure, and primary key fields are underlined. "Primary key" means a selected field (or fields in combination) that makes a record unique in a database. Refer to the Glossary in Appendix B for a technical definition of this and other terms. The order of the fields in the figure **is** the order expected for delivery. Option fields are listed in parentheses.

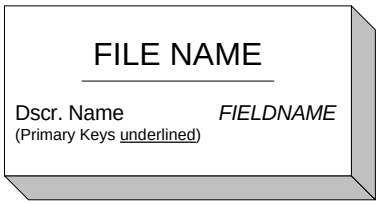


Figure 2: Example Figure Definition

1.2.2 Table Representation of EDF Files

The following table is a representation of the tables defining files of the EDF fixed length format.

Table 1: [File Name]

Field Name	Attrb	Start -End	PK	FK	VVL	REQ	Dscr. Name	Definition
FIELD1	C18	1-18	Yes	Yes	Yes	Yes	Field 1	Field 1 is a character field with 18 available positions.
FIELD2	D8	19-26	Yes	No	No	Yes	Field 2	Field 2 is a date field with an expected format of YYYYMMDD.
FIELD3	N5	27-31	No	No	No	No	Field 3	Field 3 is a numeric field with a total of 5 spaces available for numbers and decimals, with no restriction on the number of digits to the right of the decimal point other than the overall field size.
FIELD4	L1	32-32	No	No	No	Yes	Field 4	Field 4 is a logic field with expected values of "T" (true) or "F" (false).
(FIELD5)	C25	33-57	No	No	No	No	Field 5	Field 5 is an optional field.

The "Field Name" is the actual structural name of the field. All primary key fields are in bold type within these tables (e.g., ***FIELD2***). All field names are italicized throughout this document. Fields are listed in their structural order within these tables. Optional fields are in parentheses (e.g., *FIELD5*).

"Attrb" describes the field attributes (type and size). For example:

- C8 is an 8-character field (alphanumeric).
- N5 is a numeric field with a total of 5 spaces available for numbers and decimals, with no restriction on the number of digits to the right of the decimal point other than the overall field size (e.g., 12345 or 123.4 or 1.234).
- D8 is a date field with an expected format of YYYYMMDD (i.e., 20010101).
- L1 is a logic field with expected values of "T" (true) or "F" (False).
- Time format is 4 digits using a 24-hour military clock without the colon (e.g., 1400 for 2:00 p.m.).

The "Start-End" column defines the starting and ending positions for the field within the data file.

"PK" further identifies the primary key fields with a "Yes" or "No."

"FK" identifies the foreign key fields with a "Yes" or "No." A "foreign key" is a primary key field in one file (a "parent file") shared with a related file ("child file") in a data file relationship. Refer to the Glossary in Appendix B for technical definitions of this and other terms.

The "VVL" column indicates with a "Yes" or "No" whether the data field requires a valid value code.

The "REQ" column indicates with a "Yes" or "No" whether entry into a field is required.

The "Dscr. Name" column gives the descriptive name of the field.

The "Definition" is a brief definition and/or explanation of the field and expectations for entry into the field.

1.2.3 Conventions for Text

Throughout this document, file names are capitalized (e.g., the EDFSAMP file), and field names are capitalized and italicized (e.g., the *SAMPID* field). The words "file" and "table" are used interchangeably.

Each file discussion is organized into guidelines and restrictions for the file as a whole ("File Guidelines and Restrictions"), and guidelines and restrictions for entry into fields within the file ("Field Guidelines and Restrictions" and "Special Considerations"). File guidelines and restrictions include such information as whether the file must be populated and how it relates to other files in the structure.

Included in the field guidelines and restrictions are lists of which fields require VVLs, which fields require entry for submission, and the file's primary and foreign keys. Any exceptions or special cases are listed under "Special Considerations."

1.3 Valid Values

Various data fields in the EDF require entry of valid values. Valid values are built-in codes that the format requires for certain fields, such as contractor names, matrices, and laboratories. The reason for using specific values for these fields is to standardize the data entry, to ensure data consistency, and to help prevent errors. Freely entered data might contain extra spaces, commas, or dashes that would make meaningful data manipulation and thorough or accurate data searches impossible.

Most valid values are abbreviations of common or proper names; hence selecting the correct code is generally straightforward. However, some valid values are also used to link data properly (e.g., *QCCODE* is used to help link a laboratory replicate ["LR1"] to its original field sample ["CS"]). The *EDF 1.2i Data Dictionary* provides lists of the valid value codes and their definitions for each valid value field in the EDF.

New valid value codes may be requested Monday through Friday between 8:00 a.m. and 6:00 p.m. Pacific Standard Time, by contacting the EDF Help Desk by phone (800) 506-3887, fax (907) 346-1577, or e-mail edfhelpdesk@arsenaultlegg.com. Please allow 72 hours for code generation.

2 Database Description

The EDF is a relational database consisting of five files, related to one another through common (key) fields. These data files are described as relational because the information in one file is related to information in other files, linked through a group of fields called the primary key. The primary key fields collectively make a record unique within a file. A record is a line of data (a row) in a table or file made up of distinct fields of information. The primary key fields in one file record must be identical to the same fields in the linking file record in order to "relate" the data records in both files.

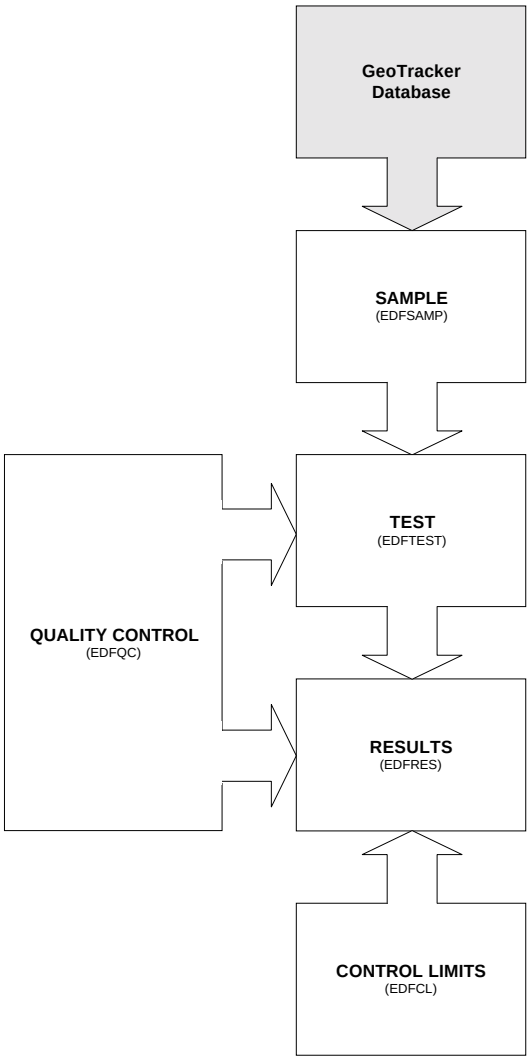
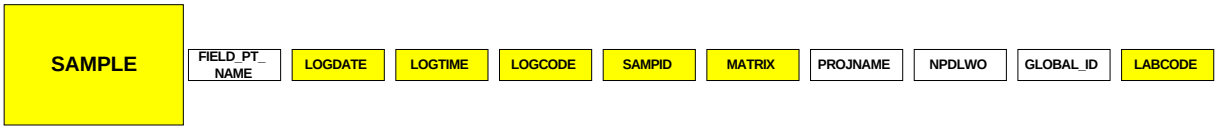


Figure 3: Relational Database Structure of the EDF

2.1 Sample Information

The EDFSAMP file (also referred to as the SAMPLE file) contains collection, location, and administrative information concerning field samples. Most of the information in this file should be available on the COC form. Only client samples appearing on the COC are to be entered into this file (i.e., no laboratory-generated samples should be entered into this file).

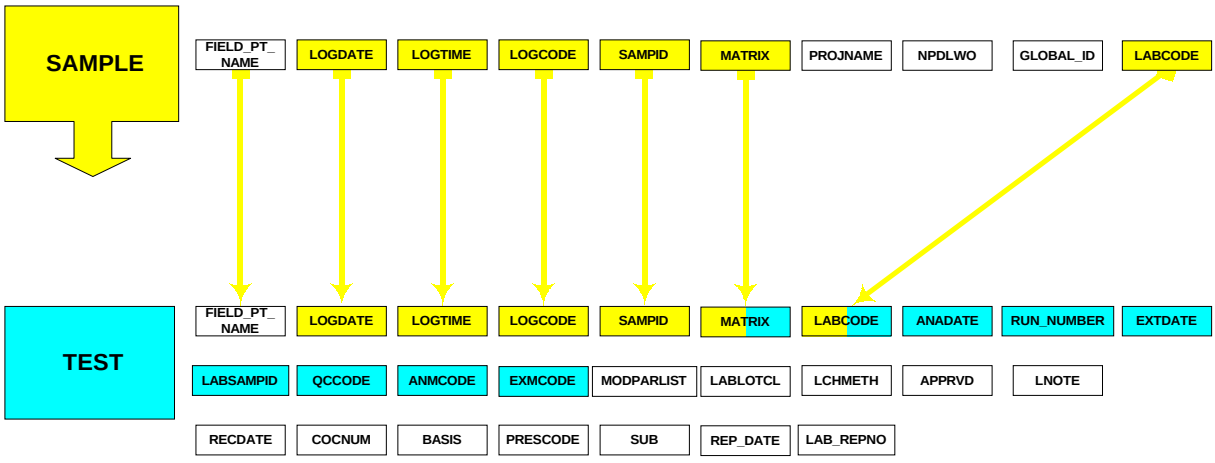
Optional fields not shown in the diagram below include *COOLER_ID*, *COC_MATRIX*, and *DQO_ID*. These fields provide a link with the EDF_COC deliverable. The SAMPLE file also links with the GEO_FLDSAMP file of the GeoTracker™ database through the *FIELD_PT_NAME* and *GLOBAL_ID* fields (refer to the *GeoTracker™ SURVEY_XYZ Information* document for details on the format).



2.2 Test Information

The EDFTEST file (also referred to as the TEST file), containing information regarding analytical tests performed on samples, is related to the SAMPLE file by sample collection information and field sample number. There is a one-to-many relationship between the SAMPLE and TEST files, meaning one record in the SAMPLE file can link to many TEST records.

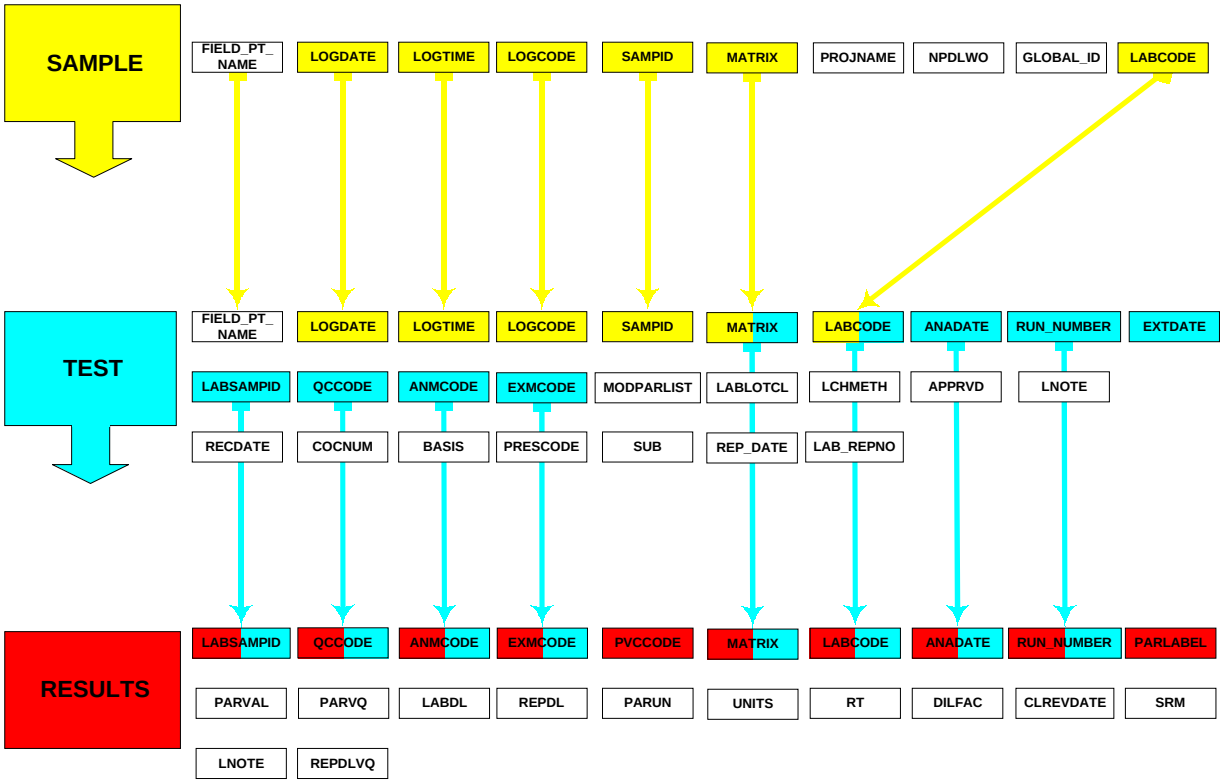
Optional fields in the TEST file not shown in the diagram below include *REQ_METHOD_GRP*, *PROCEDURE_NAME*, *LAB_METH_GRP*, *METH_DESIGN_ID*, and *CLEANUP*.



2.3 Results Information

The EDFRES file (also referred to as the RESULTS file) contains information on results generated by the laboratory. The TEST file relates to the RESULTS file through the laboratory sample ID and analytical information. There is also a one-to-many relationship between the TEST and RESULTS files, as noted above (i.e., there can be more than one result generated for a single test). Each RESULTS record contains information about a specific analytical result.

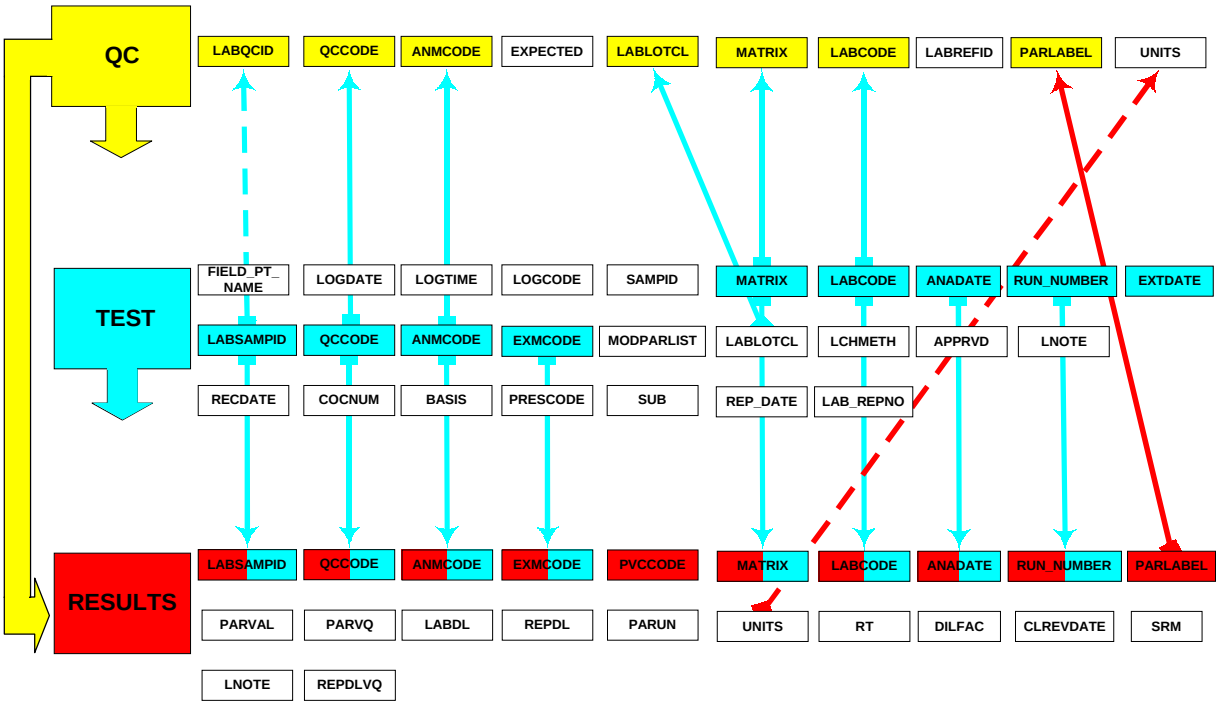
Optional fields in the RESULTS file not shown in the diagram below include *PROCEDURE_NAME, LAB_METH_GRP,* and *METH_DESIGN_ID*.



2.4 Quality Control Information

The EDFQC file (also referred to as the QC file) contains data related to laboratory quality control (QC) samples. Each QC sample is identified as belonging to a particular QC batch that serves to relate the QC and TEST files. However, the actual result for a QC sample and its related reference sample (i.e., the original sample of a duplicate or a spike) is stored in the RESULTS file.

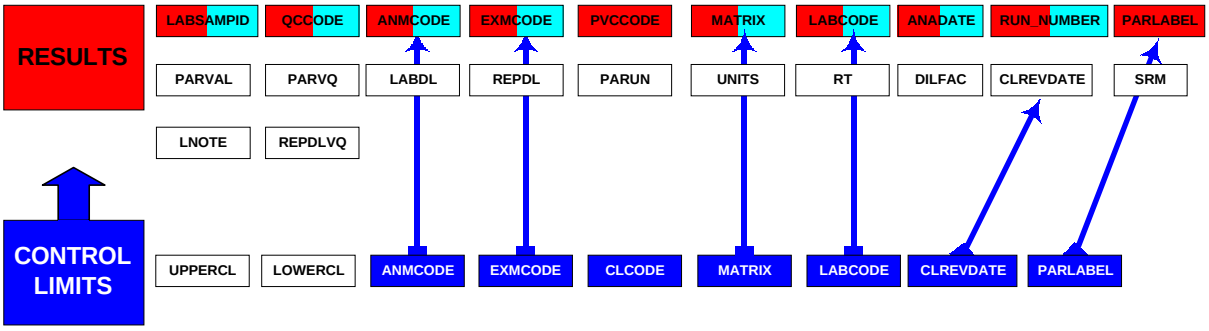
Optional fields in the QC file not shown in the diagram below include *PROCEDURE_NAME*, *LAB_METH_GRP*, and *METH_DESIGN_ID*.



2.5 Control Limit Information

The EDFCL file (also referred to as the CL file) contains data associated with analytical control limits (CL). Each CL file record contains control limit information for a parameter analyzed by a particular analytical method. The CL and RESULTS files are related through the analytical method, parameter, and control limit revision date, collectively.

Optional fields in the CL file not shown in the diagram below include *PROCEDURE_NAME, LAB_METH_GRP,* and *METH_DESIGN_ID*.



2.6 Narrative Information

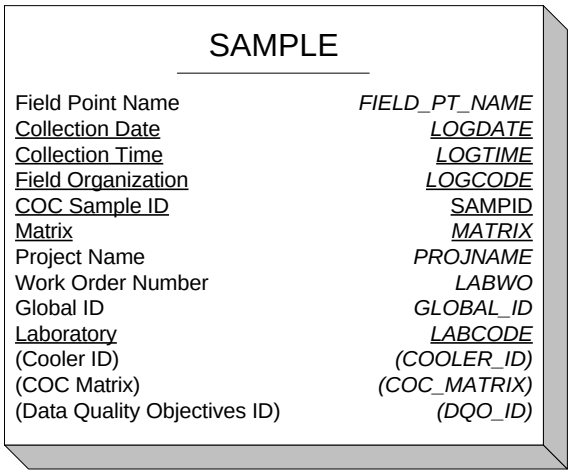
The EDFNARR file (also referred to as the NARRATIVE file) provides a means to transfer descriptive information about analyses that do not easily fit in a standardized format. This file does not require a specific format but should be delivered as an ASCII file.

3 Relational Files Format

The following Chapter describes the fixed length relational files format, and guidelines and restrictions associated with each of the relational data files of EDF.

3.1 EDFSAMP: The Sample Information File

The purpose of the SAMPLE file is to track the administrative and field collection information associated with a sample. For every field-generated sample entering the laboratory, one record is added to this file. Most of the information in this file should be available on the COC and is to be entered exactly as it appears on that form. Table 2, on page 13, presents the SAMPLE file structure and field attributes.



3.1.1 File Guidelines and Restrictions:

- Primary key fields: *LOGDATE*, *LOGTIME*, *LOGCODE*, *SAMPID*, *MATRIX*, and *LABCODE* comprise the primary key.
- Non-Client (NC) and laboratory-generated QC samples (i.e., samples created in the laboratory) are **not** to be entered into this file. ("NC" samples are samples that do not originate from a client's sites but are used to generate QC results for a client's group of samples.) These types of samples do not have associated *LOGDATE*, *LOGTIME*, *LOGCODE*, and *SAMPID* values (i.e., most of the primary key fields for the SAMPLE file).

3.1.2 Field Guidelines and Restrictions:

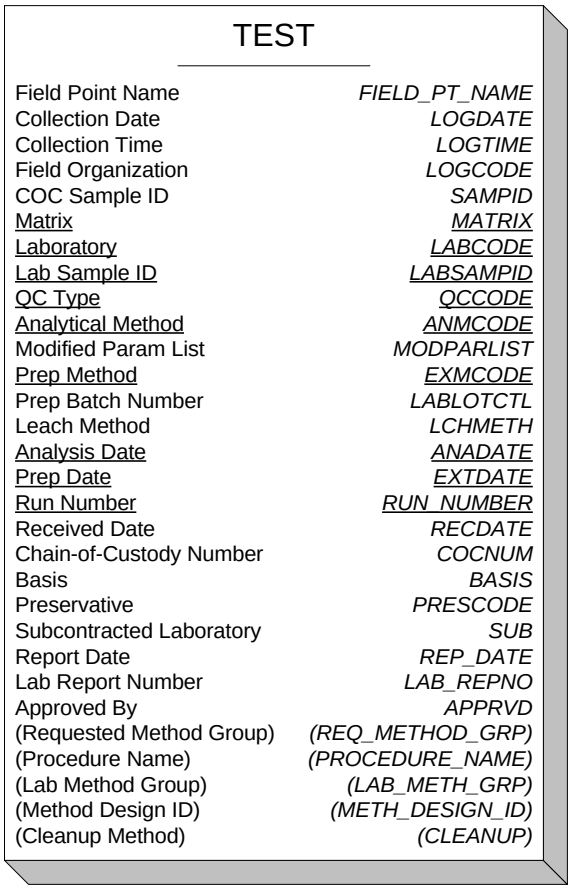
- Required fields: *LOGDATE*, *LOGTIME*, *LOGCODE*, *SAMPID*, *MATRIX*, *PROJNAME*, *LABWO*, *GLOBAL_ID*, and *LABCODE* require entry.
- Valid Value fields: *LABCODE*, *LOGCODE*, *MATRIX*, and *COC_MATRIX* require valid value entries. Refer to the *EDF 1.2i Data Dictionary* for lists of valid value codes.
- Optional fields: *COOLER_ID*, *COC_MATRIX*, and *DQO_ID* may be omitted from the deliverable. *FIELD_PT_NAME* is a linking field for the GeoTracker database. This field may be left blank if unknown (refer to the *GeoTracker™ SURVEY_XYZ Information* document for details on the format).
- Entry of "NA" is recommended for *LABWO* and *GLOBAL_ID* when that information is not available.
- *GLOBAL_ID* is a linking field for the GeoTracker database. Enter "NA" if not applicable (refer to the *GeoTracker™ SURVEY_XYZ Information* document for details on the format).
- *LABCODE* reflects the laboratory that received the sample and is responsible for generating the EDD.

Table 2: EDFSAMP (SAMPLE) Format

Field Name	Attrb	Start-End	PK	FK	VVL	REQ	Dscr. Name	Definition
FIELD_PT_NAME	C10	1-10	No	No	No	No	Field Point Name	The unique identifier for the sample's location, as identified by the organization collecting the sample.
LOGDATE	D8	11-18	Yes	No	No	Yes	Collection Date	The date a field sample is collected.
LOGTIME	C4	19-22	Yes	No	No	Yes	Collection Time	The time that a field sample is collected, recorded using 24-hour military time.
LOGCODE	C4	23-26	Yes	No	Yes	Yes	Field Organization	The code identifying the company collecting the samples or performing field tests.
SAMPID	C25	27-51	Yes	No	No	Yes	COC Sample ID	The unique identifier representing a sample, assigned by the consultant, as submitted to the laboratory on a chain-of-custody.
MATRIX	C2	52-53	Yes	No	Yes	Yes	Matrix	The code identifying the sample matrix as determined by the laboratory (e.g., water, soil, etc.).
PROJNAME	C25	54-78	No	No	No	Yes	Project Name	The identification assigned to the project by the organization performing the work.
LABWO	C7	79-85	No	No	No	Yes	Work Order Number	A delivery order number associated with the contract.
GLOBAL_ID	C12	86-97	No	No	No	Yes	Global ID	The unique identifier for a regulated facility or site.
LABCODE	C4	98-101	Yes	No	Yes	Yes	Laboratory	The code identifying the laboratory that analyzes the sample.
(COOLER_ID)	C25	102-126	Yes	No	No	No	Cooler ID	The unique identifier representing a cooler used to transport samples from the field to the lab.
(COC_MATRIX)	C2	152-153	Yes	No	Yes	No	COC Matrix	The code identifying the sample matrix as noted on the chain-of-custody (e.g., water, soil, etc.).
(DQO_ID)	C25	154-178	Yes	No	No	No	Data Quality Objectives ID	The unique identifier representing the data quality objectives.

3.2 EDFTEST: The Analysis (Test) Information File

The TEST file contains information concerning the analytical test associated with the sample. A test record is generated for each test performed that results in usable data. Five fields (*LOGDATE, LOGTIME, LOGCODE, SAMPID,* and *LABCODE*) from the SAMPLE file are carried over to the TEST file as foreign keys. Most of the information in the TEST file can be located at the top portion of a standard laboratory bench sheet. Table 3, on page 16, presents the TEST file structure and attributes.



TEST	
Field Point Name	*FIELD_PT_NAME*
Collection Date	*LOGDATE*
Collection Time	*LOGTIME*
Field Organization	*LOGCODE*
COC Sample ID	*SAMPID*
Matrix	*MATRIX*
Laboratory	*LABCODE*
Lab Sample ID	*LABSAMPID*
QC Type	*QCCODE*
Analytical Method	*ANMCODE*
Modified Param List	*MODPARLIST*
Prep Method	*EXMCODE*
Prep Batch Number	*LABLOTCTL*
Leach Method	*LCHMETH*
Analysis Date	*ANADATE*
Prep Date	*EXTDATE*
Run Number	*RUN_NUMBER*
Received Date	*RECDATE*
Chain-of-Custody Number	*COCNUM*
Basis	*BASIS*
Preservative	*PRESCODE*
Subcontracted Laboratory	*SUB*
Report Date	*REP_DATE*
Lab Report Number	*LAB_REPNO*
Approved By	*APPRVD*
(Requested Method Group)	*(REQ_METHOD_GRP)*
(Procedure Name)	*(PROCEDURE_NAME)*
(Lab Method Group)	*(LAB_METH_GRP)*
(Method Design ID)	*(METH_DESIGN_ID)*
(Cleanup Method)	*(CLEANUP)*

3.2.1 File Guidelines and Restrictions:

- Primary key fields: *MATRIX*, *LABCODE*, *LABSAMPID*, *QCCODE*, *ANMCODE*, *EXMCODE*, *ANADATE*, *EXTDATE*, and *RUN_NUMBER* comprise the primary key.
- Each TEST record must have associated SAMPLE and RESULTS records.
- All sample types must be entered into this file (i.e., client samples, non-client samples, and all QC sample types).

3.2.2 Field Guidelines and Restrictions:

- Required fields: *LOGDATE*, *LOGTIME*, *LOGCODE*, *SAMPID*, *MATRIX*, *LABCODE*, *LABSAMPID*, *QCCODE*, *ANMCODE*, *MODPARLIST*, *EXMCODE*, *LABLOTCTL*, *ANADATE*, *EXTDATE*, *RUN_NUMBER*, *RECDATE*, *BASIS*, and *SUB* require entry.
- Valid Value fields: *LABCODE*, *LOGCODE*, *MATRIX*, *QCCODE*, *ANMCODE*, *EXMCODE*, *LCHMETH*, *BASIS*, *PRESCODE*, *SUB*, *LNOTE*, and *CLEANUP* require valid value entries. Refer to the *EDF 1.2i Data Dictionary* for lists of valid value codes.
- Optional fields: *REQ_METHOD_GRP*, *PROCEDURE_NAME*, *LAB_METH_GRP*, *METH_DESIGN_ID*, and *CLEANUP* may be omitted from the deliverable.
- *MODPARLIST* requires a "T" (true) entry if a parameter from the parameter list (refer to the actual method) is not reported. The parameter list is not considered modified if extra parameters are reported.
- *LABSAMPID* must be unique.
- *RUN_NUMBER* should have a value of one or greater.
- Multiple *PRESCODE*s may be used; commas without spaces separate the codes (e.g., "P08,P12"). If the no preservative was added, this field may be left blank.
- Multiple *LNOTE*s may be used; commas without spaces separate the codes (e.g., "AZ,B,CI"). If qualification is not required, this field may be left blank.
- *LABLOTCTL* must uniquely distinguish a group of samples that are prepared together.
- *LABCODE* reflects the laboratory that first receives the sample.
- Enter a *LABCODE* (other than "NA") in the *SUB* field if the lab performing the analysis is not the laboratory that received the sample. **"NA" must be entered into this field unless the test is subcontracted out.**
- *FIELD_PT_NAME*, *LOGDATE*, *LOGTIME*, *SAMPID*, *LOGCODE*, *LAB_REPNO*, *REP_DATE*, and *COCNUM* should be left blank for laboratory-generated and non-client samples (i.e., *QCCODE* is not "CS").
- *APPRVD* should be left blank for non-client samples (i.e., *QCCODE* is "NC").

Table 3: EDFTEST (TEST) Format

Field Name	Attrb	Start-End	PK	FK	VVL	REQ	Dscr. Name	Definition
FIELD_PT_NAME	C10	1-10	No	No	No	No	Field Point Name	The unique identifier for the sample's location, as identified by the organization collecting the sample.
LOGDATE	D8	11-18	No	Yes	No	Yes	Collection Date	The date a field sample is collected.
LOGTIME	C4	19-22	No	Yes	No	Yes	Collection Time	The time that a field sample is collected, recorded using 24-hour military time.
LOGCODE	C4	23-26	No	Yes	Yes	Yes	Field Organization	The code identifying the company collecting the samples or performing field tests.
SAMPID	C25	27-51	No	Yes	No	Yes	COC Sample ID	The unique identifier representing a sample, assigned by the consultant, as submitted to the laboratory on a chain-of-custody.
MATRIX	C2	52-53	Yes	Yes	Yes	Yes	Matrix	The code identifying the sample matrix as determined by the laboratory (e.g., water, soil, etc.).
LABCODE	C4	54-57	Yes	Yes	Yes	Yes	Laboratory	The code identifying the laboratory that analyzes the sample.
LABSAMPID	C12	58-69	Yes	No	No	Yes	Laboratory Sample ID	The unique identification number assigned to the sample by the laboratory.
QCCODE	C3	70-72	Yes	No	Yes	Yes	QC Type	The code identifying the type of sample (e.g., laboratory-generated, environmental, etc.).
ANMCODE	C7	73-79	Yes	No	Yes	Yes	Analytical Method	The code identifying the method of analysis.
MODPARLIST	L1	80-80	No	No	No	Yes	Modified Parameter List	A field indicating whether the parameter list of an analytical method has been modified.
EXMCODE	C7	81-87	Yes	No	Yes	Yes	Preparation Method	The code identifying the method of preparation.
LABLOTCTL	C10	88-97	No	No	No	Yes	Preparation Batch Number	The unique identifier for a preparation and handling batch.

Field Name	Attrb	Start-End	PK	FK	VVL	REQ	Dscr. Name	Definition
LCHMETH	C10	98-107	No	No	Yes	No	Leach Method	The code identifying the method of leaching performed.
ANADATE	D8	108-115	Yes	No	No	Yes	Analysis Date	The date the sample (aliquot, extract, digest and/or leachate) is analyzed.
EXTDATE	D8	116-123	Yes	No	No	Yes	Preparation Date	The date that a sample is prepared for analysis.
RUN_NUMBER	N2	124-125	Yes	No	No	Yes	Run Number	The numeric code distinguishing multiple or repeat analysis of a sample by the same method on the same day.
RECDATE	D8	126-133	No	No	No	Yes	Received Date	The date the sample is received by the laboratory doing the analysis.
COCNUM	C16	134-149	No	No	No	No	Chain-of-Custody Number	The number assigned to the chain-of-custody.
BASIS	C1	150-150	No	No	Yes	Yes	Basis	The code used to distinguish whether a sample is reported as dry or wet weight, filtered or not filtered.
PRESCODE	C15	151-165	No	No	Yes	No	Preservative	The code identifying the type of preservative added to the sample.
SUB	C4	166-169	No	No	Yes	Yes	Subcontracted Laboratory	The code identifying the subcontracted laboratory.
REP_DATE	D8	170-177	No	No	No	No	Report Date	The date of the laboratory report.
LAB_REPNO	C20	178-197	No	No	No	No	Laboratory Report Number	The unique identifier for the laboratory report, assigned by the laboratory.
APPRVD	C3	198-200	No	No	No	No	Approved By	The initials of the individual approving the laboratory report.
LNOTE	C20	201-220	No	No	Yes	No	Laboratory Test Notes	The code identifying notes pertaining to analytical performance irregularities that apply to the entire test.

Field Name	Attrb	Start-End	PK	FK	VVL	REQ	Dscr. Name	Definition
(REQ_METHOD_GRP)	C25	221-245	Yes	No	No	No	Requested Method Group	The unique identifier for the method or group of methods requested by the client for analysis of the sample.
(PROCEDURE_NAME)	C240	246-485	Yes	No	No	No	Procedure Name	The method title as defined by the analysis laboratory.
(LAB_METH_GRP)	C25	486-510	Yes	Yes	No	No	Lab Method Group	The unique identifier for a group of methods as defined by the laboratory.
(METH_DESIGN_ID)	C25	511-535	Yes	Yes	No	No	Method Design ID	The unique identifier for the design of an analytical method.
(CLEANUP)	C15	536-550	No	No	Yes	No	Cleanup Method	The code identifying the method of cleanup performed.

3.3 EDFRES: The Results Information File

The RESULTS file contains information concerning analytical results generated by the laboratory. Each record contains a parameter result. Parameter results are coded using the *PVCCODE* to distinguish whether they are primary results or supporting analytical data (i.e., second column confirmation). Results and detection limits are to be adjusted for dilution prior to data entry. Dilution adjustments are the only calculations necessary prior to entering values into the format. All other QC calculations are performed in the database receiving the EDD. **(NOTE: The exception to this is surrogates, which are reported in "PERCENT" *UNITS*.)** Table 4, on page 22, presents the RESULTS file structure and field attributes.

3.3.1 File Guidelines and Restrictions:

- Primary key fields: *MATRIX*, *LABCODE*, *LABSAMPID*, *QCCODE*, *ANMCODE*, *EXMCODE*, *PVCCODE*, *ANADATE*, *RUN_NUMBER*, and *PARLABEL* comprise the primary key.
- Each RESULTS record must have a corresponding TEST record.
- All sample types must be entered into this file (i.e., client samples, non-client samples, and all QC types).

3.3.2 Field Guidelines and Restrictions:

- Required fields: *MATRIX*, *LABCODE*, *LABSAMPID*, *QCCODE*, *ANMCODE*, *EXMCODE*, *PVCCODE*, *ANADATE*, *RUN_NUMBER*, *PARLABEL*, *PARVAL*, *PARVQ*, *REPDLVQ*, *UNITS*, *DILFAC*, and *SRM* require entry.
- Valid Value fields: *MATRIX*, *LABCODE*, *QCCODE*, *ANMCODE*, *EXMCODE*, *PVCCODE*, *PARLABEL*, *PARVQ*, *REPDLVQ*, *UNITS*, *SRM*, and *LNOTE* require valid value entries. Refer to the *EDF 1.2i Data Dictionary* for lists of valid value codes.
- Optional fields: *PROCEDURE_NAME*, *LAB_METH_GRP*, and *METH_DESIGN_ID* may be omitted from the deliverable if not included in the TEST file.
- *LABCODE* reflects the laboratory that receives the sample.
- *RUN_NUMBER* requires a value of one or greater.
- *PARVAL*s less than *REPDL* require a *PARVQ* of "ND."
- Multiple *LNOTE*s may be used; commas without spaces separate the codes (e.g., "AZ,B,CI"). If qualification is not required, this field may be left blank.
- *CLREVDATE* should be blank for environmental samples (i.e., *QCCODE* is "CS" or "NC"), laboratory-generated blanks (i.e., *QCCODE* is "LB" or "RS"), and non-spiked parameter results, except for surrogate results (i.e., *PARVQ* is "SU").
- *LABDL* and *REPDL* should be blank for parameters with *UNITS* of "PERCENT."
- *EXPECTED* should be blank for all environmental sample results. For spiked samples, enter the **AMOUNT OF THE SPIKE ADDED PLUS THE SAMPLE VALUE** in this field. For non-spiked samples, enter the value expected into this field (i.e., for a distilled water blank, enter zero).
- *CLREVDATE* requires an entry when *QCCODE* is "MS/SD," "BS/BD," "RM/KD," "LR," "IC," or "CC."
- *CLREVDATE* requires an entry when *PARVQ* is "SU" or "IN."
- *PARVAL*, *LABDL*, and *REPDL* should be adjusted for dilution (*DILFAC*).

3.3.2.1 Special Considerations for Surrogate Compounds:

- *PARVQ* requires an entry of "SU."
- *UNITS* requires an entry of "PERCENT."
- *EXPECTED* requires an entry of "100."
- *LABDL* and *REPDL* should be blank. *REPDLVQ* and *SRM* require entry of "NA."

3.3.2.2 Special Considerations for Tentatively Identified Compounds (TICs):

- *PARVQ* requires an entry of "TI."
- Chemical Abstract Service (CAS) numbers may be used (**for TICs only**) instead of *PARLABEL*s to identify the parameter being reported. It is recommended that TICs without CAS numbers have *PARLABEL* valid values.
- *LABDL* and *REPDL* should be blank. *REPDLVQ* and *SRM* requires entry of "NA."
- *RT* is a recommended entry field for TIC results.

Table 4: EDFRES (RESULTS) Format

Field Name	Attrb	Start-End	PK	FK	VVL	REQ	Dscr. Name	Definition
MATRIX	C2	1-2	Yes	Yes	Yes	Yes	Matrix	The code identifying the sample matrix as determined by the laboratory (e.g., water, soil, etc.).
LABCODE	C4	3-6	Yes	Yes	Yes	Yes	Laboratory	The code identifying the laboratory that analyzes the sample.
LABSAMPID	C12	7-18	Yes	Yes	No	Yes	Laboratory Sample ID	The unique identification number assigned to the sample by the laboratory.
QCCODE	C3	19-21	Yes	Yes	Yes	Yes	QC Type	The code identifying the type of sample (e.g., laboratory-generated, environmental, etc.).
ANMCODE	C7	22-28	Yes	Yes	Yes	Yes	Analytical Method	The code identifying the method of analysis.
EXMCODE	C7	29-35	Yes	Yes	Yes	Yes	Preparation Method	The code identifying the method of preparation.
PVCCODE	C2	36-37	Yes	No	Yes	Yes	Primary Value Type	The code identifying whether a sample result is a primary or a confirmatory value.
ANADATE	D8	38-45	Yes	Yes	No	Yes	Analysis Date	The date the sample (aliquot, extract, digest and/or leachate) is analyzed.
RUN_NUMBER	N2	46-47	Yes	Yes	No	Yes	Run Number	The numeric code distinguishing multiple or repeat analysis of a sample by the same method on the same day.
PARLABEL	C12	48-59	Yes	No	Yes	Yes	Parameter	The code or CAS number identifying the analyte (parameter).
PARVAL	N14	60-73	No	No	No	Yes	Parameter Value	The analytical value for a compound, analyte, or physical parameter. (Formerly in the format N14,4 in EDF 1.2a.)
PARVQ	C2	74-75	No	No	Yes	Yes	Parameter Value Qualifier	The code identifying the qualifier of an analytical result (e.g., greater than, equal to, etc.).

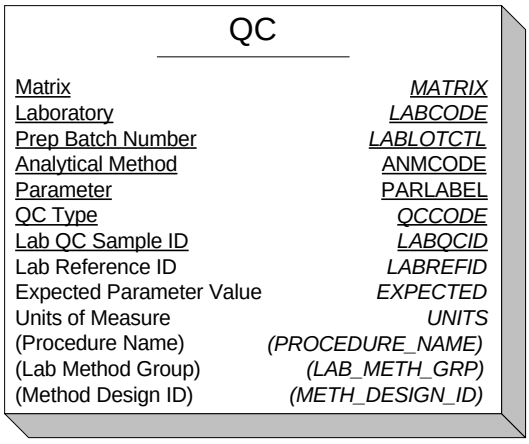
Field Name	Attrb	Start-End	PK	FK	VVL	REQ	Dscr. Name	Definition
LABDL	N9	76-84	No	No	No	No	Method Detection Limit	The laboratory-established method detection limit. (Formerly in the format N9,4 in EDF 1.2a.)
REPDL	N9	85-93	No	No	No	No	Reporting Detection Limit	The laboratory-established method detection limit, adjusted for the particular sample preparation (e.g., weight, volume, or dilution). (Formerly in the format N9,4 in EDF 1.2a.)
REPDLVQ	C3	94-96	No	No	Yes	Yes	Reporting Detection Limit Qualifier	The code identifying the type of reporting limit (e.g., practical quantitation limit, instrument detection limit, etc.).
PARUN	N12	97-108	No	No	No	No	Parameter Uncertainty	The uncertainty of a measured value due to a measuring technique (expressed as plus or minus some value). (Formerly in the format N12,4 in EDF 1.2a.)
UNITS	C10	109-118	No	No	Yes	Yes	Units of Measure	The units for the parameter value measurement.
RT	N7	119-125	No	No	No	No	Retention Time	The retention time of a tentatively identified compound (TIC), reported in minutes (min). (Formerly in the format N7,2 in EDF 1.2a.)
DILFAC	N10	126-135	No	No	No	Yes	Dilution Factor	The numeric factor indicating the level of sample dilution. (Formerly in the format N10,3 in EDF 1.2a.)
CLREVDATE	D8	136-143	No	No	No	No	Control Limit Revision Date	The date a control limit is established.
SRM	C12	144-155	No	No	Yes	Yes	Standard Reference Material	The code identifying the standard reference material used in the analysis.
LNOTE	C20	156-175	No	No	Yes	No	Laboratory Result Notes	The code identifying notes pertaining to analytical performance irregularities that apply to a single analyte.

Field Name	Attrb	Start-End	PK	FK	VVL	REQ	Dscr. Name	Definition
(PROCEDURE_ NAME)	C240	176-415	No	Yes	No	No	Procedure Name	The method title as defined by the analysis laboratory.
(LAB_METH_GRP)	C25	416-440	No	Yes	No	No	Lab Method Group	The unique identifier for a group of methods as defined by the laboratory.
(METH_DESIGN_ ID)	C25	441-465	No	Yes	No	No	Method Design ID	The unique identifier for the design of an analytical method.

3.4 EDFQC: The QC Information File

The quality assurance information in the QC file is associated with an analytical result contained in the RESULTS file. The QC records contain information on blanks, spikes, duplicates, and standard reference materials. No calculated results are required for this file. All QC calculations are performed by the database receiving the electronic deliverable.

QC samples are entered into the QC file based upon the QC batch (*LABLOTCTL*) with which they are associated. The *LABLOTCTL* allows the environmental samples to be grouped with their QC samples in order to evaluate the quality of the analytical results. The *LABLOTCTL* is an arbitrary number assigned by the laboratory to represent a group of samples prepared together, sharing the same QC samples. Table 5, on page 27, presents the QC file structure and field attributes.



3.4.1 File Guidelines and Restrictions:

- Primary key fields: *MATRIX*, *LABCODE*, *LABLOTCTL*, *ANMCODE*, *PARLABEL*, *QCCODE*, and *LABQCID* comprise the primary key.
- All spiked or split samples, and all laboratory-generated QC samples must be entered into this file.
- All QC data from subcontracted laboratories must be entered into this file.

3.4.2 Field Guidelines and Restrictions:

- Required fields: *MATRIX*, *LABCODE*, *LABLOTCTL*, *ANMCODE*, *PARLABEL*, *QCCODE*, *LABQCID*, and *UNITS* require entry.
- Valid Value fields: *MATRIX*, *LABCODE*, *QCCODE*, *ANMCODE*, *PARLABEL*, and *UNITS* require valid value entries. Refer to the *EDF 1.2i Data Dictionary* for lists of valid value codes.

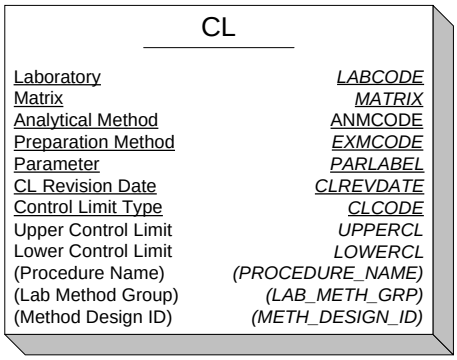
- Optional fields: *PROCEDURE_NAME*, *LAB_METH_GRP*, and *METH_DESIGN_ID* may be omitted from the deliverable if not included in the TEST and RESULTS files.
- The valid value entered into the *QCCODE* field is the *QCCODE* of the *LABQCID* sample.
- The *EXPECTED* value is the expected result of the *LABQCID* sample (i.e., **the *EXPECTED* field result for a matrix spike is the value of the spike plus the value of the original sample, *LABREFID***).
- *EXPECTED* should be blank for laboratory-generated blanks (i.e., *QCCODE* is "LB" or "RS").
- *LABREFID* should be blank for laboratory-generated blanks, reference materials, calibration standards, and spiked blanks (i.e., *QCCODE* is "LB," "RS," "RM/KD," "IC," "CC," or "BS/BD").
- *LABCODE* reflects the laboratory that receives the sample, even if the sample has been subcontracted out.

Table 5: EDFQC (QC) Format

Field Name	Attrb	Start-End	PK	FK	VVL	REQ	Dscr. Name	Definition
MATRIX	C2	1-2	Yes	Yes	Yes	Yes	Matrix	The code identifying the sample matrix as determined by the laboratory (e.g., water, soil, etc.).
LABCODE	C4	3-6	Yes	Yes	Yes	Yes	Laboratory	The code identifying the laboratory that analyzes the sample.
LABLOTCTL	C10	7-16	Yes	Yes	No	Yes	Preparation Batch Number	The unique identifier for a preparation and handling batch.
ANMCODE	C7	17-23	Yes	Yes	Yes	Yes	Analytical Method	The code identifying the method of analysis.
PARLABEL	C12	24-35	Yes	Yes	Yes	Yes	Parameter	The code or CAS number identifying the analyte (parameter).
QCCODE	C3	36-39	Yes	Yes	Yes	Yes	QC Type	The code identifying the type of sample (e.g., laboratory-generated, environmental, etc.).
LABQCID	C12	39-50	Yes	No	No	Yes	Laboratory QC Sample ID	The unique identification number assigned to the sample by the laboratory.
LABREFID	C12	51-62	No	No	No	No	Laboratory Reference ID	The laboratory sample ID of the quality control reference sample.
EXPECTED	N14	63-76	No	No	No	No	Expected Parameter Value	The target result for a quality control sample or surrogate spike. (Formerly in the format N14,4 in EDF 1.2a.)
UNITS	C10	77-86	No	No	Yes	Yes	Units of Measure	The units for the parameter value measurement.
(PROCEDURE_ NAME)	C240	87-326	No	Yes	No	No	Procedure Name	The method title as defined by the analysis laboratory.
(LAB_METH_ GRP)	C25	327-351	No	Yes	No	No	Lab Method Group	The unique identifier for a group of methods as defined by the laboratory.
(METH_DESIGN _ID)	C25	352-376	No	Yes	No	No	Method Design ID	The unique identifier for the design of an analytical method.

3.5 EDFCL: The Quality Control Limit Information File

This file contains control limit information concerning the QC results. The file does not have to be revised unless new control charts are generated. However, for tracking purposes, it must be submitted with each digital deliverable. Table 6, on page 29, presents the CL file structure and field attributes.



3.5.1 File Guidelines and Restrictions:

- Primary key fields: *MATRIX*, *LABCODE*, *ANMCODE*, *EXMCODE*, *PARLABEL*, *CLCODE*, and *CLREVDATE* comprise the primary key.
- All results with associated CL criteria require associated entry in this file.
- When control limit entry is required, both accuracy and precision limits must be entered, except in the case of calibrations and lab replicates (i.e., *QCCODE* is "IC," "CC," or "LR"), which require only precision limits.

3.5.2 Field Guidelines and Restrictions:

- Required fields: *LABCODE*, *MATRIX*, *ANMCODE*, *EXMCODE*, *PARLABEL*, *CLREVDATE*, *CLCODE*, and *UPPERCL* require entry.
- Valid Value fields: *MATRIX*, *LABCODE*, *CLCODE*, *ANMCODE*, *EXMCODE*, and *PARLABEL* require valid value entries. Refer to the *EDF 1.2i Data Dictionary* for lists of valid value codes.
- Optional fields: *PROCEDURE_NAME*, *LAB_METH_GRP*, and *METH_DESIGN_ID* may be omitted from the deliverable if not included in the TEST, RESULTS, and QC files.
- Use *UPPERCL* for relative percent difference (RPD) and upper accuracy recovery limit entries.
- *LOWERCL* should be zero for RPD (i.e., precision) entries.
- The *LABCODE* field reflects the laboratory that performed the analysis (i.e., if a subcontracted laboratory performed the analysis, the *LABCODE* would be the valid value for the subcontracted laboratory [*SUB*]).

Table 6: EDFCL (CL) Format

Field Name	Attrb	Start-End	PK	FK	VVL	REQ	Dscr. Name	Definition
LABCODE	C4	1-4	Yes	Yes	Yes	Yes	Laboratory	The code identifying the laboratory that analyzes the sample.
MATRIX	C2	5-6	Yes	Yes	Yes	Yes	Matrix	The code identifying the sample matrix as determined by the laboratory (e.g., water, soil, etc.).
ANMCODE	C7	7-13	Yes	Yes	Yes	Yes	Analytical Method	The code identifying the method of analysis.
EXMCODE	C7	14-20	Yes	Yes	Yes	Yes	Preparation Method	The code identifying the method of preparation.
PARLABEL	C12	21-32	Yes	Yes	Yes	Yes	Parameter	The code or CAS number identifying the analyte (parameter).
CLREVDATE	D8	33-40	Yes	Yes	No	Yes	Control Limit Revision Date	The date a control limit is established.
CLCODE	C6	41-46	Yes	No	Yes	Yes	Control Limit Type	The code identifying the type of quality control limit.
UPPERCL	N4	47-50	No	No	No	Yes	Upper Control Limit	The upper control limit of a quality control criterion.
LOWERCL	N4	51-54	No	No	No	No	Lower Control Limit	The lower control limit of a quality control criterion.
(PROCEDURE_ NAME)	C240	55-294	No	Yes	No	No	Procedure Name	The method title as defined by the analysis laboratory.
(LAB_METH_ GRP)	C25	295-319	No	Yes	No	No	Lab Method Group	The unique identifier for a group of methods as defined by the laboratory.
(METH_DESIGN _ID)	C25	320-344	No	Yes	No	No	Method Design ID	The unique identifier for the design of an analytical method.

3.6 EDFNARR: The Narrative File

The NARRATIVE file provides a means to transfer descriptive information about analyses that do not easily fit in a standardized format. This file does not require a specific format but should be delivered as an ASCII file.

It is recommended that a header record be included, containing the following information in comma/quote delimited format:

- Laboratory Report Number (*LAB_REPNO)*
- Laboratory (*LABCODE)*
- Laboratory Report Date (*REP_DATE)*
- EDD Version Number (*EDD_VERSION)* (e.g., EDF 1.2i)

An example NARRATIVE file might look like the following:

"LABREPORT#001","LAB1", "01/11/2001", "EDF 1.2i"

The following issues were encountered…

Signed By:
Title:
Date:

---

4 Flat File Format

The following Chapter describes the flat file format of EDF, which includes one large file of data results (EDFFLAT) that links to the CL file described in Section 3.5 and Table 6.

4.1 EDFFLAT: The Flat File

This file contains all of the data fields from the SAMPLE, TEST, RESULTS, and QC files of the relational format in one large "flat" file. This flat file links to the CL file through the same key fields with which the RESULTS file links to the CL file. The flat file may be in the fixed length, Excel *.XLS, or CSV delimited formats as discussed in Chapter 4. For details on the CL file, please refer to Section 3.5.

EDFFLAT	
Field Point Name	*FIELD_PT_NAME*
Collection Date	*LOGDATE*
Collection Time	*LOGTIME*
Field Organization	*LOGCODE*
COC Sample ID	*SAMPID*
Matrix	*MATRIX*
Project Name	*PROJNAME*
Work Order Number	*NPDLWO*
Global ID	*GLOBAL_ID*
Laboratory	*LABCODE*
Lab Sample ID	*LABSAMPID*
QC Type	*QCCODE*
Analytical Method	*ANMCODE*
Modified Parameter List	*MODPARLIST*
Preparation Method	*EXMCODE*
Prep Batch Number	*LABLOTCTL*
Leach Method	*LCHMETH*
Analysis Date	*ANADATE*
Preparation Date	*EXTDATE*
Run Number	*RUN_NUMBER*
Received Date	*RECDATE*
COC Number	*COCNUM*
Basis	*BASIS*
Preservative	*PRESCODE*
Subcontracted Laboratory	*SUB*
Report Date	*REP_DATE*
Lab Report Number	*LAB_REPNO*
Approved By	*APPRVD*
Laboratory Test Notes	*TLNOTE*
Primary Value Type	*PVCCODE*
Parameter	*PARLABEL*
Parameter Value	*PARVAL*
Parameter Value Qualifier	*PARVQ*
Method Detection Limit	*LABDL*
Reported Detection Limit	*REPDL*
RepDL Qualifier	*REPDLVQ*
Parameter Uncertainty	*PARUN*
Units	*UNITS*
Retention Time	*RT*
Dilution Factor	*DILFAC*
CL Revision Date	*CLREVDATE*
Standard Ref. Material	*SRM*
Expected Parameter Value	*EXPECTED*
Laboratory Result Notes	*RLNOTE*
(Cooler ID)	*(COOLER_ID)*
(COC Matrix)	*(COC_MATRIX)*
(Data Quality Objectives ID)	*(DQO_ID)*
(Requested Method Group)	*(REQ_METHOD_GRP)*
(Procedure Name)	*(PROCEDURE_NAME)*
(Method Design ID)	*(METH_DESIGN_ID)*
(Lab Method Group)	*(LAB_METH_GRP)*
(Cleanup Method)	*(CLEANUP)*

Table 7: EDFFLAT Format

Field Name	Attrb	Start-End	PK	FK	VVL	REQ	Dscr. Name	Definition
FIELD_PT_NAME	C10	1-10	No	No	No	No	Field Point Name	The unique identifier for the sample's location, as identified by the organization collecting the sample.
LOGDATE	D8	11-18	Yes	No	No	Yes	Collection Date	The date a field sample is collected.
LOGTIME	C4	19-22	Yes	No	No	Yes	Collection Time	The time that a field sample is collected, recorded using 24-hour military time.
LOGCODE	C4	23-26	Yes	No	Yes	Yes	Field Organization	The code identifying the company collecting the samples or performing field tests.
SAMPID	C25	27-51	Yes	No	No	Yes	COC Sample ID	The unique identifier representing a sample, assigned by the consultant, as submitted to the laboratory on a chain-of-custody.
MATRIX	C2	52-53	Yes	No	Yes	Yes	Matrix	The code identifying the sample matrix as determined by the laboratory (e.g., water, soil, etc.).
PROJNAME	C25	54-78	No	No	No	Yes	Project Name	The identification assigned to the project by the organization performing the work.
LABWO	C7	79-85	No	No	No	Yes	Work Order Number	A delivery order number associated with the contract.
GLOBAL_ID	C12	86-97	No	No	No	Yes	Global ID	The unique identifier for a regulated facility or site.
LABCODE	C4	98-101	Yes	No	Yes	Yes	Laboratory	The code identifying the laboratory that analyzes the sample.
LABSAMPID	C12	102-113	Yes	No	No	Yes	Laboratory Sample ID	The unique identification number assigned to the sample by the laboratory.
QCCODE	C3	114-116	Yes	No	Yes	Yes	QC Type	The code identifying the type of sample (e.g., laboratory-generated, environmental, etc.).
ANMCODE	C7	117-123	Yes	No	Yes	Yes	Analytical Method	The code identifying the method of analysis.
MODPARLIST	L1	124-124	No	No	No	Yes	Modified Parameter List	A field indicating whether the parameter list of an analytical method has been modified.

Field Name	Attrb	Start-End	PK	FK	VVL	REQ	Dscr. Name	Definition
EXMCODE	C7	125-131	Yes	No	Yes	Yes	Preparation Method	The code identifying the method of preparation.
LABLOTCTL	C10	132-141	Yes	No	No	Yes	Preparation Batch Number	The unique identifier for a preparation and handling batch.
LCHMETH	C10	142-151	No	No	No	No	Leach Method	The code identifying the method of leaching.
ANADATE	D8	152-159	Yes	No	No	Yes	Analysis Date	The date the sample (aliquot, extract, digest and/or leachate) is analyzed.
EXTDATE	D8	160-167	Yes	No	No	Yes	Preparation Date	The date that a sample is prepared for analysis.
RUN_NUMBER	N2	168-169	Yes	No	No	Yes	Run Number	The numeric code distinguishing multiple or repeat analysis of a sample by the same method on the same day.
RECDATE	D8	170-177	No	No	No	Yes	Received Date	The date the sample is received by the laboratory doing the analysis.
COCNUM	C16	178-193	No	No	No	No	Chain-of-Custody Number	The number assigned to the chain-of-custody.
BASIS	C1	194-194	No	No	Yes	Yes	Basis	The code used to distinguish whether a sample is reported as dry or wet weight, filtered or not filtered.
PRESCODE	C15	195-209	No	No	Yes	No	Preservative	The code identifying the type of preservative added to the sample.
SUB	C4	210-213	No	No	Yes	Yes	Subcontracted Laboratory	The code identifying the subcontracted laboratory.
REP_DATE	D8	214-221	No	No	No	No	Report Date	The date of the laboratory report.
LAB_REPNO	C20	222-241	No	No	No	No	Laboratory Report Number	The unique identifier for the laboratory report, assigned by the laboratory.
APPRVD	C3	242-244	No	No	No	No	Approved By	The initials of the individual approving the laboratory report.
TLNOTE	C20	245-264	No	No	Yes	No	Laboratory Test Notes	The code identifying notes pertaining to analytical performance irregularities that apply to the entire test.

Field Name	Attrb	Start-End	PK	FK	VVL	REQ	Dscr. Name	Definition
PVCCODE	C2	265-266	Yes	No	Yes	Yes	Primary Value Type	The code identifying whether a sample result is a primary or a confirmatory value.
PARLABEL	C12	267-278	Yes	No	Yes	Yes	Parameter	The code or CAS number identifying the analyte (parameter).
PARVAL	N14	279-292	No	No	No	Yes	Parameter Value	The analytical value for a compound, analyte, or physical parameter. (Formerly in the format N14,4 in EDF 1.2a.)
PARVQ	C2	293-294	No	No	Yes	Yes	Parameter Value Qualifier	The code identifying the qualifier of an analytical result (e.g., greater than, equal to, etc.).
LABDL	N9	295-303	No	No	No	No	Method Detection Limit	The laboratory-established method detection limit. (Formerly in the format N9,4 in EDF 1.2a.)
REPDL	N9	304-312	No	No	No	No	Reporting Detection Limit	The laboratory-established method detection limit, adjusted for the particular sample preparation (e.g., weight, volume, or dilution). (Formerly in the format N9,4 in EDF 1.2a.)
REPDLVQ	C3	313-315	No	No	Yes	Yes	Reporting Detection Limit Qualifier	The code identifying the type of reporting limit (e.g., practical quantitation limit, instrument detection limit, etc.).
PARUN	N12	316-327	No	No	No	No	Parameter Uncertainty	The uncertainty of a measured value due to a measuring technique (expressed as plus or minus some value). (Formerly in the format N12,4 in EDF 1.2a.)
UNITS	C10	328-337	No	No	Yes	Yes	Units of Measure	The units for the parameter value measurement.
RT	N7	338-344	No	No	No	No	Retention Time	The retention time of a tentatively identified compound (TIC), reported in minutes (min). (Formerly in the format N7,2 in EDF 1.2a.)
DILFAC	N10	345-354	No	No	No	Yes	Dilution Factor	The numeric factor indicating the level of sample dilution. (Formerly in the format N10,3 in EDF 1.2a.)
CLREVDATE	D8	355-362	No	No	No	No	Control Limit Revision Date	The date a control limit is established.

Field Name	Attrb	Start-End	PK	FK	VVL	REQ	Dscr. Name	Definition
SRM	C12	363-374	No	No	Yes	Yes	Standard Reference Material	The code identifying the standard reference material used in the analysis.
LABREFID	C12	375-386	No	No	No	No	Laboratory Reference ID	The laboratory sample ID of the quality control reference sample.
EXPECTED	N14	387-400	No	No	No	No	Expected Parameter Value	The target result for a quality control sample or surrogate spike. (Formerly in the format N14,4 in EDF 1.2a.)
RLNOTE	C20	401-420	No	No	Yes	No	Laboratory Result Notes	The code identifying notes pertaining to analytical performance irregularities that apply to a single analyte.
(COOLER_ID)	C25	421-445	Yes	No	No	No	Cooler ID	The unique identifier representing a cooler used to transport samples from the field to the lab.
(COC_MATRIX)	C2	446-447	Yes	No	Yes	No	COC Matrix	The code identifying the sample matrix as noted on the chain-of-custody (e.g., water, soil, etc.).
(DQO_ID)	C25	448-472	Yes	No	No	No	Data Quality Objectives ID	The unique identifier representing the data quality objectives.
(REQ_METHOD_GRP)	C25	473-497	Yes	No	No	No	Requested Method Group	The unique identifier for the method or group of methods requested by the client for analysis of the sample.
(PROCEDURE_NAME)	C240	498-737	Yes	No	No	No	Procedure Name	The method title as defined by the analysis laboratory.
(METH_DESIGN_ID)	C25	738-762	Yes	No	No	No	Method Design ID	The unique identifier for the design of an analytical method.
(LAB_METH_GRP)	C25	763-777	Yes	No	No	No	Lab Method Group	The unique identifier for a group of methods as defined by the laboratory.
(CLEANUP)	C15	778-792	Yes	No	Yes	No	Cleanup Method	The code identifying the method of cleanup performed.

5 File, Record, and Data Field Requirements

It is recommended that file, record, and data field requirements identified below are adhered to in order to generate acceptable EDDs.

5.1 File and Record Requirements

An EDD may be submitted as an ASCII fixed length *.TXT file, as a Microsoft Excel™ tab delimited *.XLS file, as a comma separated value (CSV) delimited ASCII *.TXT file (also known as "comma/quote delimited"), or in the Web-based XML format.

Each line of data is equivalent to a single record in the data submission. Each record is made up of distinct fields of information. A record cannot be dependent on another record or field for data (i.e., each data record must be autonomous of other data records). Valid data must be entered in each record. Listed below are the file and record specifications for entering each record of data in its specified file.

- The column heading or field name is not required in an ASCII file. This information is not part of the file and should be omitted. Only authorized codes from the valid value list should be keyed into fields requiring valid values.
- Do not create left margins. In each file, every record starts in the farthest left position of "position number 1." If entering the data via a spreadsheet, set the left margin at zero and the right margin at the end position of the last field of the record. The first record or row in the file, and every subsequent record or row, must contain valid data. Blank or empty rows or records are not allowed in ASCII files.
- Every record within a file must be unique. If, for each key field, a record's data appears exactly the same in another record, these two records are considered to be duplicate records.

5.2 Data Field Requirements

When producing the fixed or tab delimited formats, data element formats (attributes) must be strictly followed. Valid data must always be entered for every field. **Do not add, delete, or otherwise omit any field in any format (with the exception of optional fields that may be omitted).**

In the fixed length format, data fields in a file are limited to a certain number of spaces and the data must be in a specific position. Character data must be left justified within a field. Numeric data must be right justified within a field. If the information to be entered is shorter than the field width, insert blank spaces in the field's remaining positions. If the data to be entered is longer than the allowed field width, the data must be shortened to a unique identifier or significant value.

The start- and end-position numbers indicate the exact character locations where the applicable data must be placed in the file. There are some cases where the field is a single character wide. It, therefore, has the same start- and end-position number. The single character of data must be put in that position of the record.

For the CSV delimited format, field length is still important in that data cannot exceed the length of the field, but blank spaces do not need to be entered when a value is shorter than the field's length. For example, when entering a *LABSAMPID*, which is a C12 field, if the value to be entered is only C5, in the CSV delimited format it would look like:

"12345","next field entry"

In the fixed length format, it would look like:

12345…….next field entry
(where the dots represents 7 blank spaces before the next field).

5.3 EDD Submittal

EDDs should be submitted on a per laboratory report basis. Hence, as a laboratory report is completed and converted into the EDF, it is recommended that it be processed for submittal. Prior to submittal, the EDD must pass consistency checking using the Electronic Deliverable Consistency Checker (EDCC). The EDCC is a software program that checks each data submission for the proper EDF format, warns the user of potential formatting problems, and reports the results of the consistency check.

The recommended submittal process is as follows:

- Include an EDCC Error Report with each submittal.
- Each of the five files and the NARRATIVE file of the relational format require the following names: EDFSAMP.TXT, EDFTEST.TXT, EDFRES.TXT, EDFQC.TXT, EDFCL.TXT, and EDFNARR.TXT. The files of the flat file format require the names EDFFLAT.TXT and EDFCL.TXT.
- A hard copy of the laboratory report printed directly from the electronic data should be provided with the EDD delivery.
- EDDs may be submitted on CD, on disk, via e-mail, or other electronic media, or may be uploaded directly into the Web-based system.
  - For submittal via CD: Multiple laboratory reports may be placed on a single CD. It is recommended that each report be compressed with some version of Winzip®, have a "*.ZIP" file extension, and be given the name of the *LAB_REPNO* as convention (e.g., "MYLABREPORT1.ZIP," MYLABREPORT2.ZIP," etc.). The CD should be clearly labeled with the laboratory name, date, and the contents of the CD (i.e., each report number).
  - For submittal via disk: Try to place all files associated with one laboratory report on a single diskette. If the files are too large, compress the files with some

version of Winzip® and attempt to place the compressed file onto one diskette. Note, compressed files must be delivered with a "*.ZIP" file extension. It is recommended that each compressed file be given the name of the *LAB_REPNO* as convention (e.g., "MYLABREPORT.ZIP"). Use multiple diskettes only if the compressed file will not fit on a single diskette. Each diskette should be labeled with the laboratory name, date, the report number, and the names of the files supplied on that specific diskette if there are multiple disks. Write-protecting all disks before submittal is recommended.

- For submittal via e-mail: Each report should be compressed with some version of Winzip®, have a "*.ZIP" file extension, be given the name of the *LAB_REPNO* as convention (e.g., "MYLABREPORT1.ZIP," MYLABREPORT2.ZIP," etc.), and be password protected. Multiple zip files may be sent in the same e-mail message.
- For submittal via direct upload into Web-based system: Data uploaded to a Web-based system should conform to the EDF 1.2i data format delivery requirements specified by that particular Web-based system.

Appendix A: Summary of Data Elements

Field Name	In Table(s)	Attrb	Null Allowed	VVL	Descr. Name	Definition	Guidelines & Restrictions
ANADATE	TEST RESULTS EDFFLAT	D8			Analysis Date	The date the sample (aliquot, extract, digest and/or leachate) is analyzed.	Must be in the format YYYYMMDD. Must be later than or equal to *EXTDATE*, *RECDATE*, *LOGDATE*, and earlier than or equal to *REP_DATE*.
ANMCODE	TEST RESULTS QC CL EDFFLAT	C7		x	Analytical Method	The code identifying the method of analysis.	Must contain a valid value.
APPRVD	TEST EDFFLAT	C3	x		Approved By	The initials of the individual approving the laboratory report.	No entry for laboratory-generated QC and non-client samples.
BASIS	TEST EDFFLAT	C1		x	Basis	The code used to distinguish whether a sample is reported as dry or wet weight, filtered or not filtered.	Must contain a valid value. Valid values for soil samples are "W" or "D" or leachate codes; for water samples "F," "L," or "N."
CLCODE	CL	C6		x	Control Limit Type	The code identifying the type of quality control limit.	Must contain a valid value.
CLEANUP	TEST EDFFLAT	C15	x	x	Cleanup Method	The code identifying the method of cleanup performed.	Optional field; may be omitted from EDD.

Field Name	In Table(s)	Attrb	Null Allowed	VVL	Descr. Name	Definition	Guidelines & Restrictions
CLREVDATE	RESULTS CL EDFFLAT	D8	x		Control Limit Revision Date	The date a control limit is established.	Must be in the format YYYYMMDD. No entry when *QCCODE* is "CS," "NC," "LB," or "RS," and non-spiked parameters (except when *PARVQ* is "SU" or "IN").
COC_MATRIX	SAMPLE EDFFLAT	C2	x	x	COC Matrix	The code identifying the sample matrix as noted on the chain-of-custody (e.g., water, soil, etc.).	Optional field; may be omitted from EDD. This field provides a link with the EDF_COC. It represents the sample matrix as identified by the field organization, and must contain a valid value.
COCNUM	SAMPLE EDFFLAT	C16	x		Chain-of-Custody Number	The number assigned to the chain-of-custody.	No entry for laboratory-generated QC and non-client samples.
COOLER_ID	SAMPLE EDFFLAT	C25	x		Cooler ID	The unique identifier representing a cooler used to transport samples from the field to the lab.	Optional field; may be omitted from EDD. This field provides a link with the EDF_COC.
DILFAC	RESULTS EDFFLAT	N10			Dilution Factor	The numeric factor indicating the level of sample dilution.	Must be greater than zero. (Formerly in the format N10,3 in EDF 1.2a.)
DQO_ID	SAMPLE EDFFLAT	C25	x		Data Quality Objectives ID	The unique identifier representing the data quality objectives.	Optional field; may be omitted from EDD. This field provides a link with the EDF_COC.
EXMCODE	TEST RESULTS CL EDFFLAT	C7		x	Preparation Method	The code identifying the method of preparation.	Must contain a valid value. If no preparation performed enter "NONE." If preparation method is included in analysis method enter "METHOD."

Field Name	In Table(s)	Attrb	Null Allowed	VVL	Descr. Name	Definition	Guidelines & Restrictions
EXPECTED	QC EDFFLAT	N14	x		Expected Parameter Value	The target result for a quality control sample or surrogate spike.	No entry when *QCCODE* is "CS," "NC," "LB," or "RS." For matrix spikes, this value is the amount spiked plus the reference sample *PARVAL*. Enter "100" when *UNITS* are "PERCENT." (Formerly in the format N14,4 in EDF 1.2a.)
EXTDATE	TEST RESULTS EDFFLAT	D8			Preparation Date	The date that a sample is prepared for analysis.	Must be in the format YYYYMMDD. If no preparation performed, enter *ANADATE*.
FIELD_PT_NAME	SAMPLE TEST EDFFLAT	C10	x		Field Point Name	The unique identifier for the sample's location, as identified by the organization collecting the samples.	No entry for laboratory-generated QC and non-client samples.
GLOBAL_ID	SAMPLE EDFFLAT	C12			Global ID	The unique identifier for a regulated facility or site.	This field provides a link to the GeoTracker database system. Enter “NA” if not applicable.
LAB_METH_GRP	TEST RESULTS QC CL EDFFLAT	C25	x		Lab Method Group	The unique identifier for a group of methods as defined by the laboratory.	Optional field; may be omitted from EDD. This field provides a link with the EDF_COC.
LAB_REPNO	TEST EDFFLAT	C20	x		Laboratory Report Number	The unique identifier for the laboratory report, assigned by the laboratory.	No entry for laboratory-generated QC and non-client samples.
LABCODE	SAMPLE TEST RESULTS QC CL EDFFLAT	C4		x	Laboratory	The code identifying the laboratory that analyzes the sample.	This field represents the laboratory that received the sample and is responsible for producing the electronic deliverable, and must contain a valid value.

Field Name	In Table(s)	Attrb	Null Allowed	VVL	Descr. Name	Definition	Guidelines & Restrictions
LABDL	RESULTS EDFFLAT	N9			Method Detection Limit	The laboratory-established method detection limit.	Enter zero when *UNITS* is "PERCENT" or *PARVQ* is "TI." Must be adjusted for dilution. Must be greater than or equal to zero. (Formerly in the format N9,4 in EDF 1.2a.)
LABLOTCTL	TEST QC EDFFLAT	C10			Preparation Batch Number	The unique identifier for a preparation and handling batch.	Must uniquely define a group of samples prepared together.
LABQCID	QC	C12			Laboratory QC Sample ID	The unique identification number assigned to the sample by the laboratory.	This is equivalent to the *LABSAMPID*.
LABREFID	QC EDFFLAT	C12	x		Laboratory Reference ID	The laboratory sample ID of the quality control reference sample.	This is the *LABSAMPID* of the reference sample. No entry unless *QCCODE* is "MS/SD" or "LR."
LABSAMPID	TEST RESULTS EDFFLAT	C12			Laboratory Sample ID	The unique identification number assigned to the sample by the laboratory.	Must be unique.
LABWO	SAMPLE EDFFLAT	C7			Work Order Number	A delivery order number associated with the contract.	Entry of "NA" is acceptable.
LCHMETH	TEST EDFFLAT	C10	x	x	Leach Method	The code identifying the method of leaching.	Must contain a valid value if populated.
LOGCODE	SAMPLE TEST EDFFLAT	C4	x	x	Field Organization	The code identifying the company collecting the samples or performing field tests.	Must contain a valid value. No entry for laboratory-generated QC and non-client samples.

Field Name	In Table(s)	Attrb	Null Allowed	VVL	Descr. Name	Definition	Guidelines & Restrictions
LOGDATE	SAMPLE TEST EDFFLAT	D8	x		Collection Date	The date a field sample is collected.	Must be in the format YYYYMMDD. No entry for laboratory-generated QC and non-client samples. Must be earlier than *RECDATE*, *EXTDATE*, *ANADATE*, and *REP_DATE*.
LOGTIME	SAMPLE TEST EDFFLAT	C4	x		Collection Time	The time that a field sample is collected, recorded using 24-hour military time.	Must be a valid time between 0000 and 2359. No entry for laboratory-generated QC and non-client samples.
LOWERCL	CL	N4			Lower Control Limit	The lower control limit of a quality control criterion.	Must be an integer greater than or equal to zero and less than *UPPERCL*. Enter zero for precision limit.
MATRIX	SAMPLE TEST RESULTS QC CL EDFFLAT	C2		x	Matrix	The code identifying the sample matrix as determined by the laboratory (e.g., water, soil, etc.).	This field represents the sample matrix as identified by the laboratory, and must contain a valid value.
METH_DESIGN_ID	TEST RESULTS QC CL EDFFLAT	C25	x		Method Design ID	The unique identifier for the design of an analytical method.	Optional field; may be omitted from EDD. This field provides a link with the EDF_COC.
MODPARLIST	TEST EDFFLAT	L1			Modified Parameter List	A field indicating whether the parameter list of an analytical method has been modified.	Must enter "T" (true) or "F" (false) if a parameter from the method parameter list is not reported. The parameter list is not considered modified if extra parameters are reported.

Field Name	In Table(s)	Attrb	Null Allowed	VVL	Descr. Name	Definition	Guidelines & Restrictions
PARLABEL	RESULTS QC CL EDFFLAT	C12		x	Parameter	The code or CAS number identifying the analyte (parameter).	Must contain a valid value.
PARUN	RESULTS EDFFLAT	N12	x		Parameter Uncertainty	The uncertainty of a measured value due to a measuring technique (expressed as plus or minus some value).	No entry necessary for non-radiochemical results. If entered, must be greater than or equal to zero. (Formerly in the format N12,4 in EDF 1.2a.)
PARVAL	RESULTS EDFFLAT	N14			Parameter Value	The analytical value for a compound, analyte, or physical parameter.	(Formerly in the format N14,4 in EDF 1.2a.)
PARVQ	RESULTS EDFFLAT	C2		x	Parameter Value Qualifier	The code identifying the qualifier of an analytical result (e.g., greater than, equal to, etc.).	Must contain a valid value.
PRESCODE	TEST EDFFLAT	C15	x	x	Preservative	The code identifying the type of preservative added to the sample.	Must contain a valid value. Multiple codes may be entered, separated by commas (no spaces between values).
PROCEDURE_ NAME	TEST RESULTS QC CL EDFFLAT	C240	x		Procedure Name	The method title as defined by the analysis laboratory.	This field may contain descriptive information necessary for the lab to identify a method.
PROJNAME	SAMPLE EDFFLAT	C25	x		Project Name	The identification assigned to the project by the organization performing the work.	No entry for laboratory-generated QC and non-client samples.

Field Name	In Table(s)	Attrb	Null Allowed	VVL	Descr. Name	Definition	Guidelines & Restrictions
PVCCODE	RESULTS EDFFLAT	C2		x	Primary Value Type	The code identifying whether a sample result is a primary or a confirmatory value.	Must contain a valid value. There may be only one "PR" result per *LABSAMPID*, *ANMCODE*, *EXMCODE*, and *PARLABEL*.
QCCODE	TEST RESULTS QC EDFFLAT	C3		x	QC Type	The code identifying the type of sample (e.g., laboratory-generated, environmental, etc.).	Must contain a valid value.
RECDATE	TEST EDFFLAT	D8			Received Date	The date the sample is received by the laboratory doing the analysis.	Must be in the format YYYYMMDD. For laboratory-generated QC samples enter date sample was created (e.g., *EXTDATE*).
REP_DATE	TEST EDFFLAT	D8	x		Report Date	The date of the laboratory report.	Must be in the format YYYYMMDD. No entry for laboratory-generated QC and non-client samples.
REPDL	RESULTS EDFFLAT	N9			Reporting Detection Limit	The laboratory-established method detection limit, adjusted for the particular sample preparation (e.g., weight, volume, or dilution).	Enter zero when *UNITS* is "PERCENT" or *PARVQ* is "TI." Must be adjusted for dilution. Must be greater than or equal to zero. (Formerly in the format N9,4 in EDF 1.2a.)
REPDLVQ	RESULTS EDFFLAT	C3		x	Reporting Detection Limit Qualifier	The code identifying the type of reporting limit (e.g., practical quantitation limit, instrument detection limit, etc.).	Must contain a valid value. Enter "NA" when *UNITS* is "PERCENT" or *PARVQ* is "TI."
REQ_METHOD_GRP	TEST EDFFLAT	C25	x		Requested Method Group	The unique identifier for the method or group of methods requested by the client for analysis of the sample.	Optional field; may be omitted from EDD. This field provides a link with the EDF_COC.

Field Name	In Table(s)	Attrb	Null Allowed	VVL	Descr. Name	Definition	Guidelines & Restrictions
RLNOTE	RESULTS EDFFLAT	C20	x	x	Laboratory Result Notes	The code identifying notes pertaining to analytical performance irregularities that apply to a single analyte.	Must contain a valid value. Multiple codes may be entered, separated by commas (no spaces between values).
RT	RESULTS EDFFLAT	N7	x		Retention Time	The retention time of a tentatively identified compound (TIC), reported in minutes (min).	No entry necessary except when *PARVQ* is "TI." If entered must be greater than or equal to zero. (Formerly in the format N7,2 in EDF 1.2a.)
RUN_NUMBER	TEST RESULTS EDFFLAT	N2			Run Number	The numeric code distinguishing multiple or repeat analysis of a sample by the same method on the same day.	Must be an integer greater than or equal to 1.
SAMPID	SAMPLE TEST GEO_ FLDSAMP EDFFLAT	C25	x		COC Sample ID	The unique identifier representing a sample, assigned by the consultant, as submitted to the laboratory on a chain-of-custody.	This field represents the sample ID as it appears on the COC. No entry for laboratory-generated QC and non-client samples.
SRM	RESULTS EDFFLAT	C12		x	Standard Reference Material	The code identifying the standard reference material used in the analysis.	Must contain a valid value. Enter "NA" if no reference material.
SUB	TEST EDFFLAT	C4		x	Subcontracted Laboratory	The code identifying the subcontracted laboratory.	Must contain a valid value. Enter "NA" if no analyses are subcontracted.
TLNOTE	TEST EDFFLAT	C20	x	x	Laboratory Test Notes	The code identifying notes pertaining to analytical performance irregularities that apply to the entire test.	Must contain a valid value. Multiple codes may be entered, separated by commas (no spaces between values).

Field Name	In Table(s)	Attrb	Null Allowed	VVL	Descr. Name	Definition	Guidelines & Restrictions
UNITS	RESULTS QC EDFFLAT	C10		x	Units of Measure	The units for the parameter value measurement.	Must contain a valid value.
UPPERCL	CL	N4			Upper Control Limit	The upper control limit of a quality control criterion.	Must be an integer greater than or equal to one and greater than *LOWERCL*.

Appendix B: Glossary of Terms

ANADATE (Analysis Date) - The date a sample or extract is analyzed. The date format for this field is YYYYMMDD. (D8)

ANMCODE (Analytical Method) - The code identifying the method of analysis by which the sample was analyzed. Refer to the *EDF 1.2i Data Dictionary* for a list of valid values. (C7)

APPRVD (Approved By) - Initials of the individual approving the laboratory report. (C3)

Attributes - The format and size attributes of a database field. A field type of C8 is a field that can hold up to eight alphanumeric characters. An N5 field type has a total of 5 spaces available for numbers and decimals, with no restriction on the number of digits to the right of the decimal point other than the overall field size (e.g., 12345 or 123.4 or 1.234). A D8 field type is a date field, usually formatted as YYYYMMDD ([year][month][day]). An L1 field type is a logic field with expected values of T (true) or F (false).

BASIS (Basis) - Identifies the basis (W = wet, D = dry, F = field filtered, L = lab filtered, or N = not filtered) on which analytical results are reported for all matrices. This field is also used to indicate leaching procedures. Refer to the *EDF 1.2i Data Dictionary* for a list of valid values. (C1)

Blank Spike - A laboratory-generated quality control sample with a known amount of spiked compound, prepared using the same glassware, reagents, solvents, etc., as the associated environmental samples. Blank spikes are used to monitor the laboratory's method accuracy (i.e., how close their result is to a known true value).

CLCODE (Control Limit Type) - The code identifying the type of quality control limits. *CLCODE*s are assigned based upon the type of quality assurance sample as well as the source of validation criteria. Refer to the *EDF 1.2i Data Dictionary* for a list of valid values. (C6)

CLEANUP (Cleanup Method) - The code identifying the method of cleanup performed prior to analysis. (C15) Optional field.

CLREVDATE (Control Limit Revision Date) - The date that the control limit is established. The format of this field is YYYYMMDD. (D8)

CNTSHNUM (Control Sheet Number) - The administratively-assigned identification used to track contracts. (C12)

COC_MATRIX (Chain-of-Custody Matrix) - The code identifying the sample matrix as noted on the chain-of-custody (e.g., water, soil, etc.). This field links to the chain-of-custody tables of the EDF_COC. Refer to the *EDF 1.2i Data Dictionary* for a list of valid values. (C2)

COC (Chain-of-Custody) - A form used to track sample custody from sample collection to receipt by the laboratory. Also includes request for analyses and other instructions to the laboratory. The COC is included in the container used to transport samples from the field to the laboratory.

COCNUM (Chain-of-Custody Number) - The number assigned to the chain-of-custody. (C16)

COELT (U.S. Army Corps of Engineers Loading Tool) - A software tool designed for data entry, data export, data verification, and data reporting, used by analytical laboratories to generate EDF deliverables. The current version is 1.2a, and is available to anyone, free of charge.

COOLER_ID (Cooler ID) - The unique identifier representing the cooler used to transport samples from the field to the lab. This field links to the chain-of-custody tables of the EDF_COC. (C25)

Database - A collection of information arranged into records (rows) and fields (columns) for ease of sorting and manipulation within a table or related tables.

Deliverable - A report, data, etc., that is "delivered" to another party, either electronically, or in hard copy format.

DILFAC (Dilution Factor) - Numeric factor indicating level of sample dilution. (N10) (Formerly in the format N10,3 in EDF 1.2a.)

DQO_ID (Data Quality Objectives ID) - The unique identifier representing the data quality objectives. This field links to the chain-of-custody tables of the EDF_COC. (C25)

EDCC (Electronic Deliverable Consistency Check) - A software tool designed to verify EDF_LAB deliverables for compliance to the EDF guidelines and restrictions as described in this document. The current version is 1.2i, and is available to anyone, free of charge.

EDD (Electronic Data Deliverable) - Information stored in a defined format, accessible via a computer (e.g., stored on diskette, internal hard drive, CD ROM, magnetic tape, etc.).

EDF (Electronic Deliverable Format) - An electronic data format consisting of related text files in ASCII format. The current version is 1.2i. The EDF consists of multiple deliverables: EDF_COC (containing chain-of-custody information), EDF_LAB (containing laboratory analytical results information), and others. EDF_LAB deliverables can be generated using the COELT software, or other database software.

EXMCODE (Preparation Method) - A code showing the method that was used to extract or prepare a sample for analysis. Refer to the *EDF 1.2i Data Dictionary* for a list of valid values. (C7)

EXTDATE (Preparation Date) - The date a sample is extracted or prepared for analysis. The format of this field is YYYYMMDD. (D8)

EXPECTED - (Expected Parameter Value) - The target result for a quality control sample. Samples that are reported in units of PERCENT have expected values of 100. (N14) (Formerly in the format N14,4 in EDF 1.2a.)

Field - An area of a table (a column) that contains a particular piece of information. One or more fields make a record. Fields are defined by the attributes of format and size. Refer to Figure 6.

FIELD_PT_NAME (Location Identification) - This is a unique identifier assigned to a specific point (location) where measurements or samples are taken. (C10)

File - A named group of electronic data in a defined format.

Foreign Key - Primary key field of a parent table shared with a child table in a data table relationship.

GeoTracker™ - A geographic information system (GIS) developed by ArsenaultLegg, Inc., which provides online access/interface to environmental data pertaining to underground fuel tanks, fuel pipelines, and public drinking water supplies in the State of California.

GLOBAL_ID (Global ID) The unique identifier for a regulated facility or site. This field provides a link to the GeoTracker database location information. Enter "NA" if not applicable. (C12)

Guidelines and Restrictions - Information provided to the user regarding data entry, data performance, and data delivery expectations.

Hard Copy Report - The laboratory's written, signed report of analytical results for a group of samples in a project.

LABCODE (Laboratory) - A code identifying the analytical laboratory. Refer to the *EDF 1.2i Data Dictionary* for a list of valid values. (C4)

LABDL (Method Detection Limit) - The laboratory-established method detection limit (i.e., the minimum detectable concentration of an analyte that can be measured and reported with 99% confidence that the analyte concentration is different from a blank for a given matrix). This limit must be adjusted for dilution. The *LABDL* field may or may not contain the same value as the *REPDL* field, depending on the reporting format of the individual laboratory. Regardless, the laboratory must enter a value into *LABDL* unless the parameter is a tentatively identified compound, or has units of PERCENT. (N9) (Formerly in the format N9,4 in EDF 1.2a.)

LABLOTCTL (Preparation Batch Number) - A unique number identifying an autonomous batch or group of environmental samples prepared together, and sharing the same quality control within the same time period. This group is equivalent to the EPA SW-846 concept of a "Quality Assurance Batch." (C10)

LAB_METH_GRP (Lab Method Group) - The unique identifier for a group of methods as defined by the laboratory. This field links to the chain-of-custody tables of the EDF_COC. (C25)

LABQCID (Laboratory QC Sample Identification) - The laboratory-assigned QC sample ID number. All quality assurance samples are entered into this field, including laboratory-generated samples (blanks and laboratory control samples), as well as environmental samples that have been altered by the laboratory (matrix spike). This field requires unique laboratory-assigned sample identifiers. (C12)

LABREFID (Laboratory Reference Sample Identification) - The reference sample is the sample upon which the quality control sample is referenced in order to calculate the quality assurance result. A reference sample is used in conjunction with a quality control sample (*LABQCID*) to determine precision and accuracy. (C12)

LAB_REPNO (Laboratory Report Number) - Laboratory-assigned number uniquely identifying the hard copy report. (C20)

LABSAMPID (Laboratory Sample Identification) - The unique identification number assigned to a sample by the laboratory doing the testing. (C12)

LABWO (Work Order Number) - A delivery order number associated with the contract. (C7)

LCHMETH (Leach Method) - The code identifying the method of leaching. (C10)

LNOTE (Laboratory Notes) - These are data qualifiers describing various observations and difficulties with the analysis associated with a test or analyte. Multiple data qualifiers may be entered into this field separated by commas without spaces. For laboratory data without qualifiers, spaces may be entered into this field. Refer to the *EDF 1.2i Data Dictionary* for a list of valid values. (C20)

Location - A permanent, unique identifier assigned to the physical spot from where a field sample is collected, or measurements are taken for a project.

LOGCODE (Field Organization) - A code identifying the company responsible for the collection of samples or the performing of field tests (environmental sampling information). Refer to the *EDF 1.2i Data Dictionary* for a list of valid values. (C4)

LOGDATE (Collection Date) - This is the date that a sample is collected. The format of this field is YYYYMMDD. (D8)

LOGTIME (Collection Time) - The time that an environmental sample is collected. The format of this field is a 24-hour military clock HHMM. (C4)

LOWERCL (Lower Control Limit) - The lower limit of a quality control acceptance criterion. Enter spaces into this field for relative percent difference. (N4)

MATRIX (Matrix) - A code identifying a sample's medium or makeup (e.g., soil, water, air, etc.). Refer to the *EDF 1.2i Data Dictionary* for a list of valid values. (C2)

Matrix Spike - A laboratory-generated quality control sample made up of the same matrix as the environmental sample, plus a known quantity of a known substance (spike). Matrix spikes are used to assess matrix interference effects on method accuracy.

METH_DESIGN_ID (Method Design ID) - The unique identifier for the design of an analytical method. This field links to the chain-of-custody tables of the EDF_COC. (C25)

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. A modification indicates the deletion of compounds analyzed within a method, as listed in SW-846. (L1)

Parent-to-Child Records - In a relational database, the relationships between tables can be one-to-many (i.e., one record in the first table is related to many records in the second table), or one-to-one (i.e., one record in the first table relates to one record in the second table).

In a one-to-many table, the table on the “one” end is called the parent table, and the table on the “many” end is called the child table. A parent may have many child tables, but each child table has only one parent table. This relationship is called a one-to-many, or parent-to-child, relationship, as shown in Figure 4.

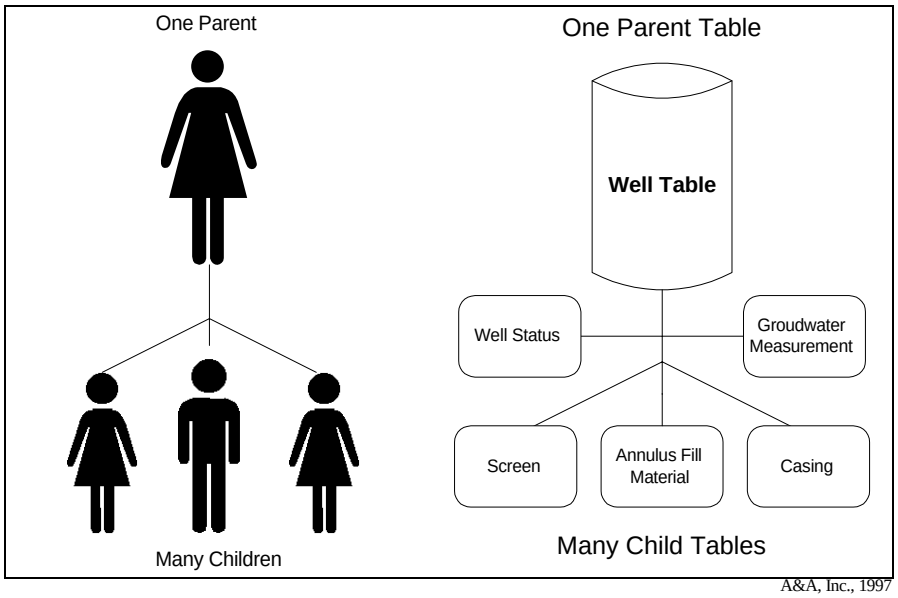


Figure 4: One-to-Many Parent-Child Table Relationship

A parent table also contains parent records that relate to many child records. Therefore, many child records within one child table will have one parent record in the parent table. For example, one well location, MW-01, may relate to many samples taken at that location, as indicated in Figure 5. Parent records may also have only one child record, or a one-to-one relationship.

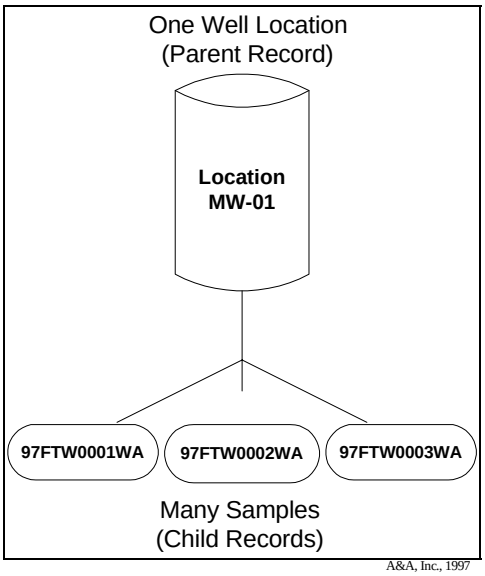


Figure 5: One Parent Record to Many Child Records

PARLABEL (Parameter) - The parameter label is 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. Refer to the *EDF 1.2i Data Dictionary* for a list of valid values. (C12)

PARUN (Parameter Uncertainty) - The analytical uncertainty associated with a laboratory result. This field is present only for radiochemical results. For all other analytes enter a zero. (N12) (Formerly in the format N12,4 in EDF 1.2a.)

PARVAL (Parameter Value) - This field represents the actual analytical value for a compound or analyte. It is the result generated after a sample has been analyzed or a test performed. For parameter results not calculated due to multiple runs, or if the analyte is below the *LABDL*, enter a zero into this field. (N14) (Formerly in the format N14,4 in EDF 1.2a.)

PARVQ (Parameter Value Qualifier) - A code qualifying the analytical result. The parameter value qualifier is designed to describe to what the analytical value is equivalent, (i.e., not detected, equals to, or not reported). These codes also identify TICs and surrogates. Refer to the *EDF 1.2i Data Dictionary* for a list of valid values. (C2)

PRESCODE (Preservative Added) - This is the code identifying the type of chemical preservative added to the sample. This code only applies to the chemical additives--holding temperature and container selection is assumed to be within EPA guidelines, unless otherwise identified in the *LNOTE* field. More than one *PRESCODE* may be entered into this field, separated by commas without spaces. Refer to the *EDF 1.2i Data Dictionary* for a list of valid values. (C15)

Primary Key - A field or set of fields that uniquely identify a record within a table. Key fields within a table define the primary key. Each database record can be uniquely identified using the combination of data fields that make up the primary key, as illustrated in Figure 6.

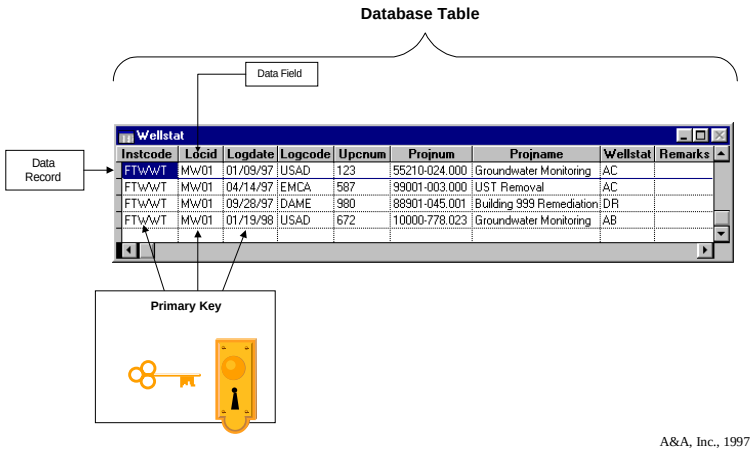


Figure 6: Primary Key

PROCEDURE_NAME (Procedure Name) - The method title as defined by the analysis laboratory. (C240) Optional field.

PROJNAME (Project Name) - The identification assigned to the project by the organization performing the work. (C25)

PVCCODE (Primary Value Type) - This allows the coding of Gas Chromatography or Gas Chromatography/Mass Spectroscopy results to show whether the reported result was obtained from a primary or a confirmatory analysis. Methods or analytes not requiring confirmation and requiring only one analysis run, should be reported with the *PVCCODE* of PR. Refer to the *EDF 1.2i Data Dictionary* for a list of valid values. (C2)

QCCODE (Quality Control Type) - A code identifying the sample type, i.e., field samples or laboratory-generated quality control samples. Refer to the *EDF 1.2i Data Dictionary* for a list of valid values. (C3)

RECDATE (Received Date) - Date that the laboratory physically takes custody of the sample. The format of this field is YYYYMMDD. (D8)

Record - A line of data (a row) in a table or file made up of distinct fields of information. Refer to Figure 6.

REP_DATE (Report Date) - Date that the laboratory generates the hard copy report. The format for this field is YYYYMMDD. (D8)

REPDL (Reported Detection Limit) - The detection limit reported by the laboratory to determine whether a parameter is detectable. (N9) (Formerly in the format N9,4 in EDF 1.2a.)

REPDLVQ (Reported Detection Limit Qualifier) - A qualifier used to define the type of detection limit that the laboratory is reporting, (i.e., practical quantitation limits, instrument detection limits, etc.). Refer to the *EDF 1.2i Data Dictionary* for a list of valid values. (C3)

REQ_METHOD_GRP (Requested Method Group) - The unique identifier for the method or group of methods requested by the client for analysis of the sample. This field links to the chain-of-custody tables of the EDF_COC. (C25)

RT (Retention Time) - Retention time of a TIC. It is reported in minutes. (N7) (Formerly in the format N7,2 in EDF 1.2a.)

RUN_NUMBER (Run Number) - This field permits the numerical coding of multiple or repeat analyses of a sample (one *LABSAMPID*) by the same analytical method. (N2)

SAMPID (Field-Assigned Sample Identification) - The number assigned during sample collection in the field. (C25)

SRM (Standard Reference Material) - Code identifying source of reference material for calibration standard confirmation. Refer to the *EDF 1.2i Data Dictionary* for a list of valid values. (C12)

SUB (Subcontracted Laboratory) - Field identifying the subcontracted laboratory. Refer to the *EDF 1.2i Data Dictionary* for a list of valid values. (C4)

Surrogate - A compound that is similar to the target analyte(s) in chemical composition, extraction, chromatography, and behavior in the analytical process, but that is not normally found in environmental samples. Samples are spiked with known amounts of surrogates as a check on method procedure accuracy. Percent recoveries are calculated for each surrogate and are an indication of the percent recovery of the analytes in the sample.

Table - A format for data that allows for data manipulation within a database. Tables are organized with columns and rows of information. (Refer to Figure 6.)

UPPERCL (Upper Control Limit) - The upper limit of a quality control acceptance criterion. Enter relative percent difference and percent difference limits into the *UPPERCL*. (N4)

UNITS (Units of Measure) - The units of measure used to report a result (e.g., for soil or for water). Refer to the *EDF 1.2i Data Dictionary* for a list of valid values. (C10)

Valid Value - Specially-assigned, standardized coded value designating an approved (i.e., "valid") value for entry into a field in the database. A complete EDF 1.2i valid value list is available in the *EDF 1.2i Data Dictionary*.