EPA Region 5

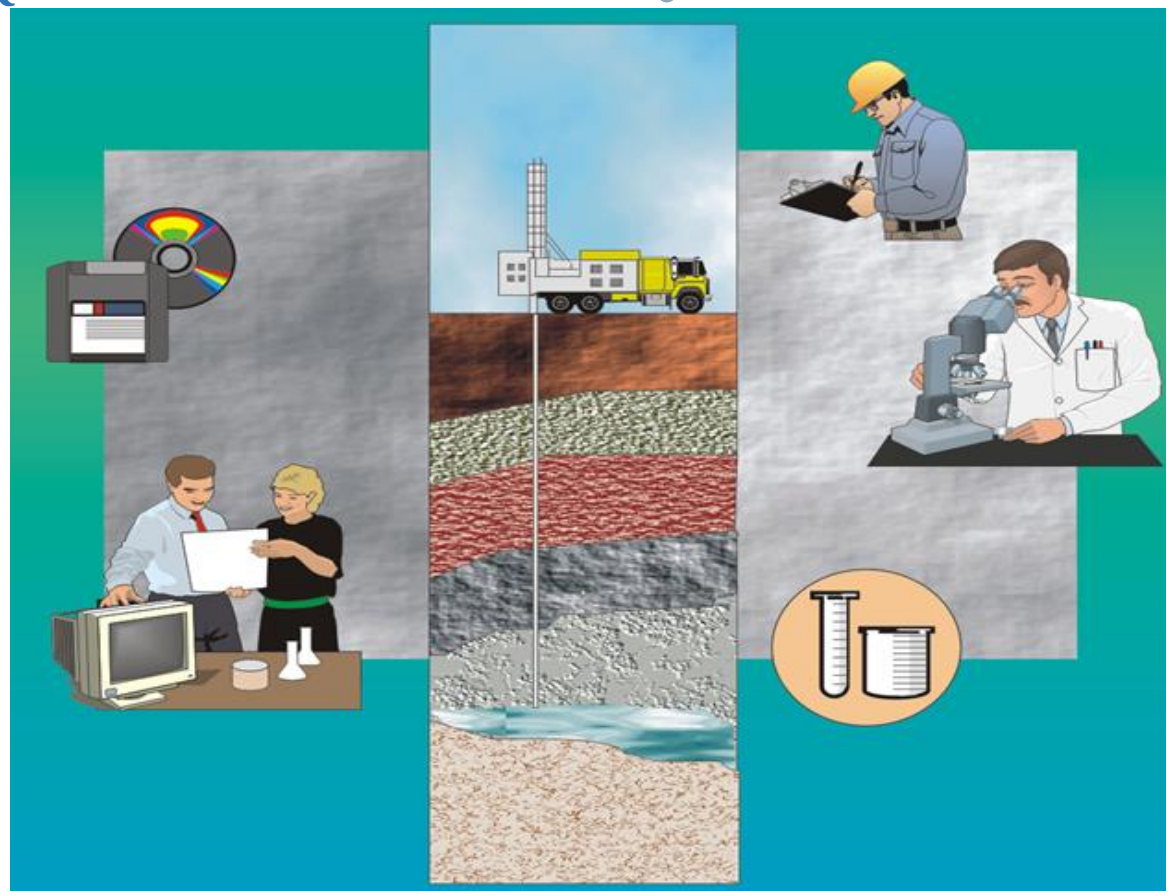
77 West Jackson Blvd. Chicago, IL 60604

Electronic Data Deliverable (EDD)

Comprehensive Manual Version 4.1

August, 2016

EQuIS Professional version 6.5.1 • EDD format version 3.0.7



THIS PAGE LEFT BLANK INTENTIONALLY

ACKNOWLEDGEMENTS

This document was originally prepared for EPA Region 5 by the John A. Volpe National Transportation Systems Center (Volpe Center). This document was reviewed and edited by David Wilson and Mary Tierney of EPA Region 5; William Halloran and Joseph Monaghan of the Volpe Center; and John Hennessy and Ellen Baptiste-Carpenter of Battelle Laboratories, Inc. Other technical reviewers from EPA include Patricia Scott, Chemist, EPA Region 5; Douglas Yeskis, Geologist, EPA Region 5; Luanne Vanderpool, Geologist, EPA Region 5; Anthony Kahaly, EPA Region 5, RCRA Division; and Andy Crossland, Hydrogeologist, EPA, Region 2. Other reviewers include Steve Losier of the Volpe Center; Janet Magurn, Scot Weaver and Dave Abercrombie of EarthSoft, Inc.; Rosanna Buhl of Battelle Laboratories, Inc.; and Izak Maitin of the New Jersey Department of Environmental Protection.

EarthSoft Inc. developed the Electronic Data Processor (EDP) and reviewed the EDD format to assure its technical accuracy.

This documentation was reviewed and updated by Diann Cox-Tramel (Region 2), and John Canar, Region 5 and updated on August, 2016 to meet the standards and requirements of EPA Region 5.

DISCLAIMER OF ENDORSEMENT

Reference herein to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government, and shall not be used for advertising or product endorsement purposes.

EXECUTIVE SUMMARY

The purpose of this specification manual is to provide detailed instructions on how to report environmental data electronically to the United States Environmental Protection Agency (EPA) Region 5. The types of data can be reported electronically include, for example, data generated during site characterization and investigation phases, data recorded when installing monitoring wells, and monitoring data that is routinely collected from a variety of media. This manual describes the procedural and formatting requirements you need to know to submit your Electronic Data Deliverable (EDD) to the EPA Region 5 Superfund Division.

This EDD Comprehensive Specification manual describes the requirements for reporting all **current** and **future** environmental data to EPA Region 5. EPA recognizes that some information about data collected in the past may not be readily available and, by reducing the requirements for electronic basic data, is endeavoring to strike a balance between minimizing the amount of effort involved in inputting information and maximizing the ability to document remedy progress. Environmental data collected and analyzed **prior** to the initial use of this EDD Comprehensive specification manual should be reported using the EPA Region 5 "Basic Manual for Historic Electronic Data". The reporting requirements of the "Basic Manual for Historic Electronic Data" are a subset of this comprehensive EDD Comprehensive specification manual.

The EPA Region 5 EDD is comprised of four groups: **Field, Lab, Basic, and Facility.**

The first group of the EDD is the Field, which contains the data for the point of contact, site information, Locations, as well as drilling activities, lithology, well installation, well construction and well segment, geotechnical sample information, water levels, water table, downhole logging methods, Extraction and Injection wells, and Soil Gas survey data. Those files are:

Field- the folloing **three** files can be submitted once unless there are new/ additional locations to the site

- Data Provider (named as "EPAR5DATAPROVIDER_v3" is the point of contact for EDD and file providing the information)
- Subfacility (named as "EPAR5SUBFACILITY_v3", which is the general information about the site)
- Location (named as "EPAR5LOC_v3", which is the information regarding the sampling locations)

The following files are included in the **Field section**, which contains the field data, please submit the data when they are available:

- Drilling Activity (named as "EPAR5DRA_v3", which is the information about drilling activities resulting form the soil borings.)
- Lithology (named as "EPAR5LTH_v3", which is the lithology information for the borings.)
- Well (named as "EPAR5EPAR5WEL_v3", which contains the monitoring well information related to well instruction)
- Well Construction (named as "EPAR5WSG_v3", which contains the well construction details and well segment data.)
- Geology Sample (named as "EPAR5GSMP_v3", which contains the geotechnical sample information)
- Water Level (named as "EPAR5GWTR_v3", which contains the information on water levels measured from the soil borings or wells.)
- Water Table (named as "EPAR5TBL_v3", which contains the information pertaining the water table)

- Downhole Logging (named as "EPAR5DHP_v3", which contains the data from downhole logging methods such as Cone Penetrometer Tests and geophysics.)
- Extraction and Injection Wells (named as "EPAR5EIW_v3", which contains the data about extraction and Injection wells)
- Soil Gas (named as "EPAR5EPAR5SoilGas_v3", which contains the imports soil gas survey data.)

In most cases, the vast majority of the electronic data submitted over the life of the project, and that will be submitted on a reoccurring, routine basis, will be lab data.

Lab

The Lab EDD files contain data related to chemistry field measurements, sample collection information, sample tests and result QC. The Lab EDD files are the:

- Sample (named as "EPAR5SMP_v3", which contains the information about sample collection)
- Test Result (named as "EPAR5TRS_v3", which contains the information concerning analytical tests and lab results performed on samples.)
- Test Result QC (named as "EPAR5TRSQC_v3", which contains the information about the analytical test performed on samples with quality control data elements)
- Batch (named as "EPAR5BAT_v3", which contains the data that related the individual samples to the batch identifier.)

Basic Submittals

The Basic EDD files contain historical operation and maintenance (O&M) data. The EDD files are the:

- Basic Location (named as "EPAR5_BasicLOC_v3", which contains the information about sampling locations from historical data)
- Basic Water Level (named as "EPAR5_BasicWTR_v3", which contains the information regarding groundwater level measurements)
- Basic Chemistry Sample (named as "EPAR5_BasicChem_v3", which contains the information about sample collection)
- Basic Geology (named as "EPAR5_BasicGEO_v3", which contains the information about geology data)

Faciltiy

The facility data includes an electronic base map of the site property, one file containing general information about the site and about the point of contact for the EDD, and a file containing data pertaining to site sampling locations.

- Files (named as "Files_v3", which contains any supplementary information about site such as a base map, a cover letter about the data, data provider, or the site sampling information.)

Of the files listed above, the Lab and Field files that most data providers will submit will be the Well, Water Level, Extraction Injection Wells, Sample, Test/Result QC files. The Test Result with QC and Batch files will only be submitted in those rare cases where EPA requires QA/QC data in electronic format. The Extraction/Injection Well file will only need to be submitted for sites with extraction or injection wells.

The process for creating Field, Lab, and/or Facility EDDs are shown in Figures E-1 and E-2, respectively. The process begins by identifying the software tool that will be used. Many software tools, such as text editors, word processors, spreadsheets, and databases, are capable of creating EDDs. Because spreadsheets and databases are designed to enter and manage data, however, they are generally preferred for creating EDDs. The production of the data tables will normally be a collaborative effort between

laboratories and environmental contractors. The laboratories will typically produce the test/result tables while the contractors normally will produce all of the other tables.

As shown in Figures E-1 and E-2, decision points are included in the EDD creation process to ensure that Field EDD files have been submitted for a site, as well as to prevent redundancy when getting ready to submit Lab EDDs. For example, one of the Field EDDs called the SUBFACILITY file, which contains data describing the site and site contact information, should generally only be reported once (unless, as previously noted, a change occurs). Similarly, another Field EDD file, the Location file, which contains locational data, typically only needs to be reported once. The only time a Location EDD file would be resubmitted is if **the data changed in some way**. For example, if settling occurs at a site over time, a resurvey of site monitoring wells may be warranted. If the survey results show changes in the elevations of the monitoring wells, the Location file would have to be resubmitted.

The final step before submitting an EDD to EPA Region 5 is to check it using the Electronic Data Processor (EDP) software application that is currently provided on the EPA Region 5 website (located at **https://www.epa.gov/superfund/region-5-superfund-electronic-data-submission**). This software application will identify any formatting errors in the files that must be corrected prior to submitting the EDD.

Figure E-1 Process flow diagram for the creation and checking of Field, and Lab EDD files

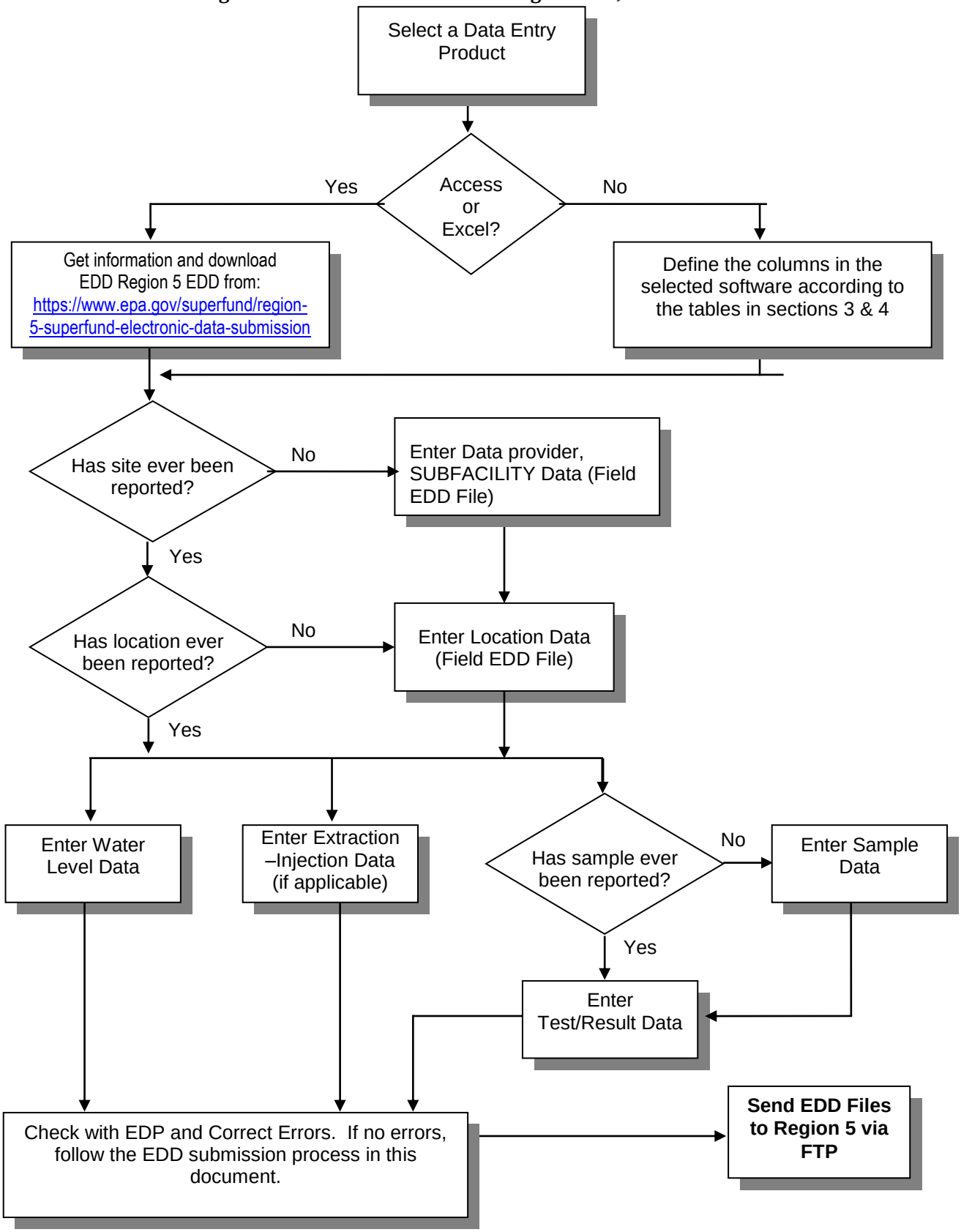
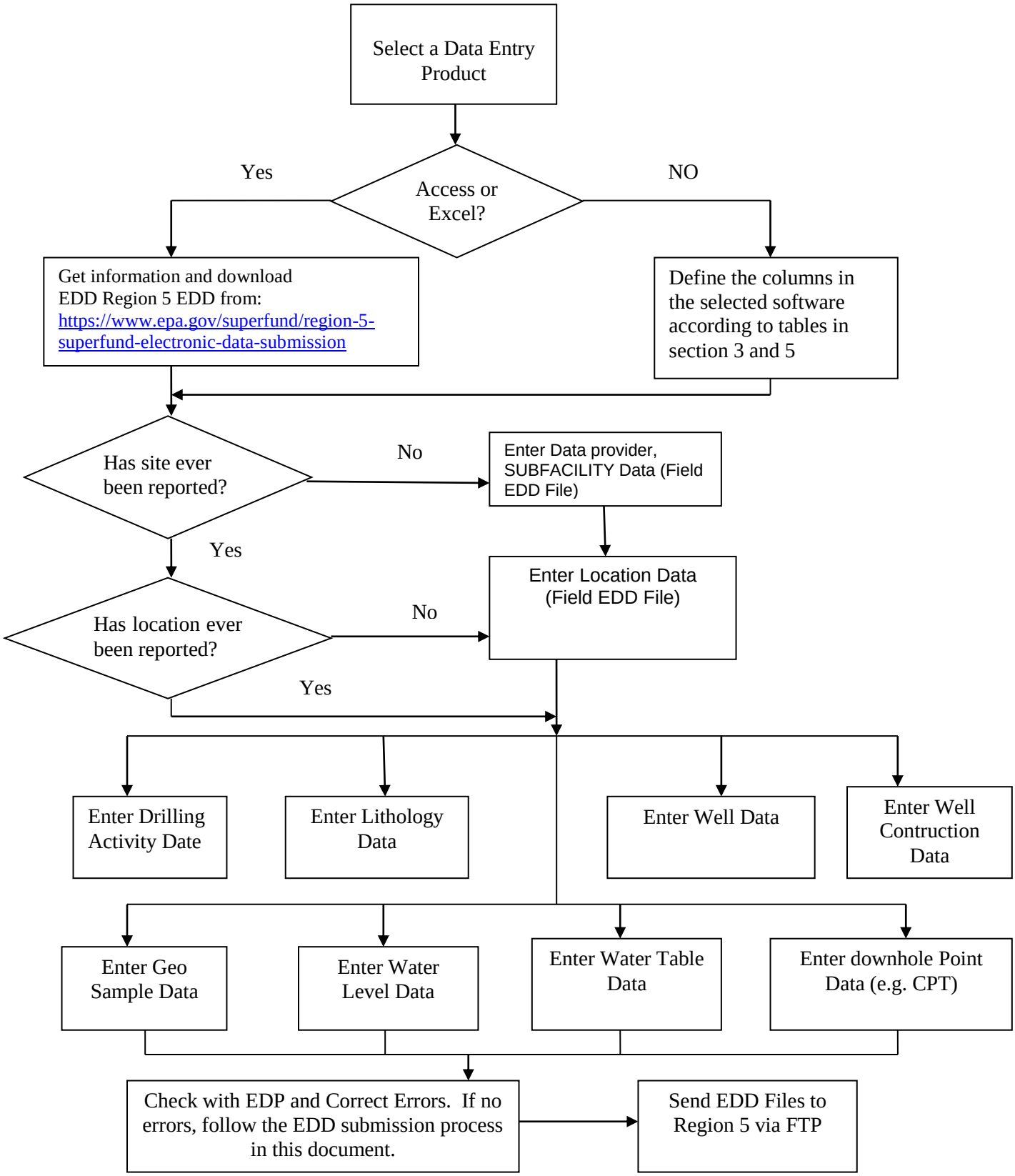


Figure E-2 Process flow diagram for the creation and checking of Field EDD files



THIS PAGE LEFT BLANK INTENTIONALLY

TABLE OF CONTENTS

EXECUTIVE SUMMARY iii
1. INTRODUCTION TO THE EPA REGION 5 ELECTRONIC DATA DELIVERABLE (EDD) 1
2. GENERAL EDD REPORTING REQUIREMENTS 3
2.1 File Formats 3
2.2 Field Data Submittals 3
2.3 Lab Data Submittals 6
2.4 File Naming Convention 7
2.5 Data Integrity Rules 10
2.6 Definition of a Facility, Site, and Location 13
2.7 Reporting Null Values 13
2.8 Valid Values 14
2.9 Reporting Re-Tests 15
2.10 Reporting Non-Detects 15
2.11 Reporting Tentatively Identified Compounds 16
2.12 Data Types 16
2.13 Data Entry Tools Provided to Create the EDD Files 17
2.14 Using the Electronic Data Processor to Check EDD Formatting 19
2.15 Submitting Your EDD to EPA Region 5 19
2.16 Examples of Field, and Lab EDD Files 21
3. FORMATS FOR Facility Files and Field Files 28
3.1 Facility EDD Files 28
3.2. Field Files 29
3.3 SUBFACILITY EDD File 29
3.4 Location EDD File (EPAR5LOC_v3) 30
3.5 Drill Activity EDD File 35
3.6 Lithology EDD File 36
3.7 Well EDD File 38
3.8 Well Construction EDD File 40
3.9 Geology Samples EDD File 41
3.10 Water Levels 44
3.11 Water Table EDD Files 47
3.12 Geology Down Hole Point Data EDD File 48
3.13 Extraction – Injection Well (EPAR5EIW_v3) EDD File 49
3.14 Soil Gas Data EDD File 51
4. FORMATS FOR LAB FILES 52
4.1 Lab Sample EDD File 52
4.2 Lab Test Results EDD Files 55
4.3 Lab Test/Result with QC Data EDD File 59
4.4 Lab Batch Data (EPAR5BAT_v3) EDD File 66
5. TECHNICAL SUPPORT 67

LIST OF TABLES

Table 2-1 General information on the files that comprise the first three files in the Field EDD section..... 3
Table 2-2 General information on the files that comprise the field files in the Field EDD section..... 5
Table 2-3 General information on the files that comprise the Chemistry EDD..... 6
Table 2-4 EDD File Naming Formats..... 9
Table 2-5 Examples of how to report null values 13
Table 2-6 Cross-reference between the valid value tables in appendix and the EDD files 14
Table 2-7 Example of reporting re-tests 15
Table 2-8 Example of reporting non-detects..... 15
Table 2-9 Example nomenclature for TIC reporting..... 16
Table 2-10 Data type descriptions 16
Table 2-11 Instructions for producing tab-delimited text files from some software packages..... 18
Table 3-1 Files (Files_v3) structure..... 28
Table 3-2 Data Provider (EPAR5DataProvider_v3) File Structure..... 29
Table 3-3 SUBFACILITY (EPAR5SUBFACILITY_v3) data file structure..... 30
Table 3-4 Location Data (EPAR5LOC_v3) File Structure..... 31
Table 3-5 Drill activity (EPAR5DRA_v3) file data structure 35
Table 3-6 Lithology (EPAR5LTH_v3) file data structure..... 37
Table 3-7 Well (EPAR5WEL_v3) file data structure..... 38
Table 3-8 Well construction (EPAR5WSG_v3) file data structure..... 40
Table 3-9 Geology samples (EPAR5GSMP_v3) file data structure..... 41
Table 3-10 Water Level (EPAR5GWTR_v3) file data structure..... 45
Table 3-11 Water table (EPAR5TBL_v3) file data structure 47
Table 3-12 Geology Downhole Point (EPAR5DHP_v3) File Data Structure 49
Table 3.12a Example of downhole point data file 49
Table 3-13 Extraction-Injection Well (EPAR5EIW_v3) file data structure 49
Table 3-14 Soil Gas (EPAR5SoilGas_v3) Survey file data structure..... 51
Table 4-1 Lab sample (EPAR5SMP_v3) file data structure..... 52
Table 4-2 Lab Test Results (EPAR5TRS_v3) EDD file data structure 55
Table 4-3 Chemistry test/results with QC (EPAR5TRSQC_v3) data file structure 60
Table 4-4 Lab batch file (EPAR5BAT_v3) data structure..... 66

LIST OF FIGURES

Figure E-1 Process flow diagram for the creation and checking of Field, and Lab EDD files vi
Figure E-2 Process flow diagram for the creation and checking of Field EDD files vi
Figure 2-1 Relationships between Lab file data structures. 12
Figure 2-2 Facility component definitions.....13
Figure 2-3. Example Field EDD ready for conversion to text file 21
Figure 2-4. Example Lab EDD ready for conversion to text file 21
Figure 2-5. Examples of QC data fields in a Chemistry EDD 22
Figure 2-5. Examples of QC data fields in a Chemistry EDD (continued).....24
Figure 2-6. Example Field EDD ready for conversion to text file 25
Extraction Injection Wells 27

THIS PAGE LEFT BLANK INTENTIONALLY

1. INTRODUCTION TO THE EPA REGION 5 ELECTRONIC DATA DELIVERABLE (EDD)

The EPA Region 5 Superfund Division has developed an electronic data management system to improve how environmental data from Superfund sites are acquired and managed. The system will accelerate the review of environmental data submittals, improve service to the regulated community, and enhance the protection of the environment and the public. A vital element in the electronic transfer of environmental data is the submittal of data in a standardized, "computer-friendly" format. The specifications and formatting requirements for the EPA Region 5 EDD were developed to facilitate the transfer of data from data providers to the EPA.

NOTE: This EDD Comprehensive Specification manual describes the requirements for reporting all **current** and **future** environmental data to EPA Region 5. Environmental data collected and analyzed **prior** to the initial use of this EDD specification manual should be reported using the EPA Region 5 "Basic Manual for Electronic Data". EPA recognizes that some information about data collected in the past may not be readily available and, by reducing the requirements for electronic historical data, is endeavoring to strike a balance between minimizing the amount of effort involved in inputting information and maximizing the ability to document remedy progress.

The EPA Region 5 EDD is in part based on standard EDDs used in applications developed by EarthSoft, Inc. However, the format is designed to be software-independent and easy to achieve. Any spreadsheet, database, or text editor can be used to create the EDD files. Examples of applications that can be used to create Region 5 EDDs include Access, FoxPro®, Excel, and Notepad.

Basically, the EDD is a series of files used to report data. For example, one file is used to report location data while another is used to report samples collected at a location. Multiple files are used to eliminate the need to report redundant data. For example, the data for a location (e.g., coordinates and elevations) are reported once in the location (EPAR5LOC_v3) file. Many years of sampling and analytical data may be reported for that location without having to submit the LOC file again.

This specification manual includes examples of EDD files populated with data. In addition, several EDD templates are currently available on the EPA Region 5 E-Data website (https://www.epa.gov/superfund/region-5-superfund-electronic-data-submission) for loading data into the EDD format. The website also contains a no-cost software program, the Electronic Data Processor (EDP) that needs to be used to check EDD files before they are submitted to EPA Region 5. The EDP is a single application that checks all EDD files and provides a much easier user interface for identifying and correcting errors.

This EDD Comprehensive Specification Manual discusses EDD submittals in three separate sections:

- General reporting requirements and submission process are discussed in Section 2.
- The Facility and Field file structures (i.e.data provider, subfacility, location, water level) are defined in Section 3.
- The Lab file structures are defined in Section 4. In most cases, lab data accounts for the majority of data that is reported.

Each file must be reported exactly as defined in these sections. Any deviations will result in loading errors.

EPA Region 5 expects all fields referred to as “Required”, “Not required” or “If available” to be filled in. If data for fields referred to as “If available” meaning the data can be reported when available, such as the result values and the unit. If users reported the result values, it is preferred to repor the unit as well. Data fields indicated as “Not required” meaning the fields are not required fields. These fields were only included so that other EPA regions or states could use the same EDD but have slightly different data type requirements.

Currently, EPA is working to finalize EDD requirements that would be national standards for Superfund data for all 10 EPA Regional offices. When this national Superfund EDD is finalized, data providers who have already begun submitting data according to the EPA Region 5 format will be given time to transition to any national format changes.

2. GENERAL EDD REPORTING REQUIREMENTS

2.1 File Formats

With the exception of the electronic base map, all data from the EPA Region 5 data providers must be reported as **text files**. Each data field must be separated either by tabs (tab-delimited) (indicated by the suffix "txt" on the file name) or comma-delimited (indicated by the suffix "csv" on the file name). One other option is to enclose each field in double quotation marks (") (indicated by the suffix "txt" on the file name). However, because using double quotation marks to delineate fields is typically more time consuming (unless the data are already in this format), it is anticipated that this method will not be widely used. Data fields containing no information should not be simply omitted. Instead they should be represented by the delimiter of choice, e.g., by two tabs in tab-delimited files or two commas in comma-delimited files (see example in Section 2.16). The maximum length of each text field is indicated in parentheses in the EDD tables shown in Sections 3 and 4. If the information is less than the maximum length, there is no need to add spaces to the record to ensure that all spaces are used. Maximum length requirements imply that the field can be no longer than the specified number of characters. However, it is completely acceptable to fill the field with fewer characters than the maximum number. Each record -- which is the term used for each line of information -- must be terminated with a carriage return/line feed (created by pressing the "Enter "key in a text editor).

2.2 Field Data Submittals

The Field data submittal consists of the initial data submittal and the field data including: Data Provider (DataProvider), Subfacility, and the Location (Location) file including facility center point in latitude longitude coordinate, and the field data including drilling activities, lithology, well installation, well construction and well segments, geotechnical sample information, water levels, water table, downhole logging methods, extraction and injections wells, and Soil gas survey data. The first three files in the Field submittals provide information pertaining to the site, the site EDD contact, and site sampling locations. These files generally only need to be submitted once at the beginning of the project. These files only need to be resubmitted if any changes occur. Examples of changes that would require resubmittal include changes in site contact information or location data that changes after being resurveyed. New sampling locations established after the initial Location file submittal will require a new submittal with data only pertaining to the new locations. Table 2-1 provides general information on the first three files in the Field EDD section, sometimes; data provider will submit a cover letter or base maps in the Files_v3 in the Facility secion. Table 2-2 provides general information on the field data files in the Field EDD section.

Table 2-1 General information on the files that comprise the first three files in the Field EDD section

File Type	File Name	Created By	Contents	What makes a row of data unique?	Dependence of other files on these data
Data Provider	Date. EPAID. EPAR5DATAPROVIDER_v3.txt (or csv)	Data Provider	Information about the data provider	Data_Provider	Not applicable

File Type	File Name	Created By	Contents	What makes a row of data unique?	Dependence of other files on these data
Subfacility (Section 3.3)	Date. EPAID. EPAR5SUBFACILITY_v3.txt (or csv)	Data provider	One-time definition of site including EPA Region 5 data providers' contact information.	Facility_code, subfacility_name, subfacility_task_code…etc	The location file cannot be loaded without properly referenced subfacility (facility_code).
Location (Section 3.4)	Date. EPAID. EPAR5LOC_v3. txt (or csv)	Data provider's surveyor	One entry for each location on a site including a facility center point. Contains elevation, coordinate and general locational data. Facility center point is required for the initial submittal. Data should only be reported once for a location.	sys_loc_code	Sample, water levels, field measurements, and extraction well data can only be reported for locations that are defined in this file.

Data provider, Subfacility, and location files are generally only need to be submitted once at the beginning of the project, along with the **Files_v3 file** in the **Facility** section.

File Type	File Name	Created By	Contents	What makes a row of data unique?	Dependence of other files on these data
File_v3	The site's base map in Lat/Long and the file format must be in .dxf or drawing (.dwg) or ArcGIS Shape files. Another file type can be documents or pdf, such as cover letter or any kind of documents.	Data provider	#1. Basemap of sites in (.dxf), drawing (.dwg), or ArcGIS Shape File. #2. Cover letter or any documents in .pdf or doc files	Not applicable	Not applicable.

Field EDD submittals contain data obtained during subsurface investigations at the site. When submitting the Field EDD, all field EDD files for which information is available should be submitted. The Field EDD includes files for Drilling Activity (EPAR5DRA_v3), lithology data (EPAR5LTH_v3), general well information (EPAR5EPAR5WEL_v3), well construction information (EPAR5WSG_v3), geology sample data (EPAR5GSMP_v3), general information about the water table (EPAR5GWTR_v3), Water Table (EPAR5TBL_v3), downhole logging methods point data (EPAR5DHP_v3), extraction and injection well

(ExtractionInjectionWells), soil gas survey data (SoilGas). Unlike the Lab EDD, where submittals are typically submitted on a cyclic basis, in most cases the Geology EDD is submitted only once. Additional Geology EDDs are submitted only if new geology data are collected.

Sites reporting data from monitoring wells installed or from geology-related activities completed more than one year prior to the date of data submittal are not required to submit the Field EDD files – unless the monitoring wells are being used for operation and maintenance (O&M) monitoring. . However, for all newly installed monitoring wells or current geology data collection efforts (i.e., within one year from the date of data submittal), data providers must submit all applicable Field files as detailed in Section 3.

Table 2-2 provides general information on the files that make up the field files in the Field EDD. Detailed instructions for creating the Field EDD files are provided in Section 3, "Formats for Field Files". Instructions for submitting your EDDs to EPA Region 5 are presented in Section 2.15.

Table 2-2 General information on the files that comprise the field files in the Field EDD section

File Type	File Name	Created By	Contents	What makes a row of data unique?	Dependence of other files on these data
Drilling Activity (Section 3.5)	Date. EPAID. EPAR5DRA_v3. txt (or csv)	Data provider's geologist	General Information regarding soil borings.	sys_loc_code drill_event	None.
Lithology (Section 3.6)	Date. EPAID.EPAR5LTH_ v3.txt (or csv)	Data provider's geologist	Lithology data for the borings.	sys_loc_code start_depth	None.
Well (Section 3.7)	Date. EPAID.EPAR5WEL _v3. txt (or csv)	Data provider's geologist	General information regarding well installation.	sys_loc_code	Well construction and water level data can only be reported for wells that are defined in this file.
Well Construction (Section 3.8)	Date. EPAID. EPAR5WSG_v3.txt (or csv)	Data provider's geologist	Well construction details recorded during well construction and well segments.	sys_loc_code segment_type start_depth end_depth material_type_ code depth_unit	None.
Geology Samples (Section 3.9)	Date. EPAID. EPAR5GSMP_v3. txt (or csv)	Data provider's geologist or laboratory	Contains geotechnical sample information	Sys_loc_code, geo_sample_code	None.
Water Level (Section 3.10)	Date.EPAID.EPAR5 GWTR_v3.txt (or csv)	Data provider's field sampling team(s)	Contains water levels measured from he soil borings or wells	sys_loc_code measurement_date	None.
Water Table (Section 3.11)	Date. EPAID. EPAR5TBL_v3. txt (or csv)	Data provider's geologist	General information pertaining to water table.	sys_loc_code type	None.

File Type	File Name	Created By	Contents	What makes a row of data unique?	Dependence of other files on these data
Downhole Point (CPT) Data (Section 3.12)	Date. EPAID. EPAR5DHP_v3. txt (or csv)	Data provider's geologist	Results of all downhole logging such as CPT, resistivity, or other geophysical logs.	sys_loc_code depth param	None.
Extraction-Injection Well (Section 3.13)	Date. EPAID. EPAR5EIW_v3. Txt (or csv)	Data provider's field sampling team(s)	Data that relates to any extraction wells that are operating as part of the remedial action and injection wells.	sys_loc_code start_measurement_date end_measurement_date	None.
Soil Gas (Section 3.14)	Date. EPAID. EPAR5SoilGas_v3. Txt (or csv)	Data Provider's geologist	Results of information regarding the soil gas	sys_loc_code	None

2.3 Lab Data Submittals

Lab EDDs are submitted after each round of sampling and include the following types of files: chemistry sample information (EPAR5SMP_v3), Test Result (EPAR5TRS_v3), test/results with QC (EPAR5TRSQC_v3), batch information (EPAR5BAT_v3).

Table 2-3 provides general information on the files that make up the Lab EDD files. Detailed instructions for creating the Lab EDD files are provided in Section 4, "Formats for Lab EDD Files". Instructions for submitting your EDDs to EPA Region 5 are presented in Section 2.15.

Table 2-3 General information on the files that comprise the Chemistry EDD

File Type	File Name	Created By	Contents	What makes a row of data unique?	Dependence of other files on these data
Sample (Section 4.1)	Date. EPAID.EPAR5SMP_ v3. txt (or csv)	Data provider's field sampling team(s)	One row for each sample collected at the site.	sys_sample_code sample_matrix_code sample_type_code sample_source sample_date	Tests/results QC and batch data can only be reported for samples that are defined in this file.
Test Result (Section 4.2)	Date.EPAID.EPAR5 TRS_v3.txt (or csv)	Data provider's field sampling team (s)	Contains data concerning analytical tests and results performed on samples.	Sys_sample_code Lab_anl_method_na me Analysis_date	None

Table 2-3 General information on the files that comprise the Chemistry EDD

File Type	File Name	Created By	Contents	What makes a row of data unique?	Dependence of other files on these data
Test/ Result with QC Data (Section 4.3)	Date. EPAID.EPAR5TRSQC_v3.txt (or csv)	Data provider's contractor lab(s)	Test/Result file with additional fields for QC data.	sys_sample_code lab_anl_method_name analysis_date analysis_time total_or_dissolved test_type cas_rn	None.
Batch (Section 4.4)	Date. EPAID.EPAR5BAT_v3. txt (or csv)	Data provider's contractor lab(s)	Data that relate the individual samples to the batch identifier	sys_sample_code lab_anl_method_name analysis_date analysis_time total_or_dissolved test_type test_batch_type	None.

2.4 File Naming Convention

-Sign and Submit

After using the tools outlined above to resolve all of the issues in a set of Data Files the data is ready to be submitted for loading into the EQuIS 6.5.1 database. The Sign and Submit tool was designed to facilitate submittal of data to EQuIS Enterprise EDP. Sign and Submit option packages the data files with the correct naming convention which allows easy submittal of data packages. Use of the Sign and Submit feature requires a user name and password which can be obtained from the EPA Region 5 database administrator. Please email to canar.john@epa.gov for the information.

To use the "Sign and Submit" feature, after data files have been loaded and all of the errors have been resolved,

1. Select Sign and Submit from the Application Menu. This will open the Sign and Submit window.

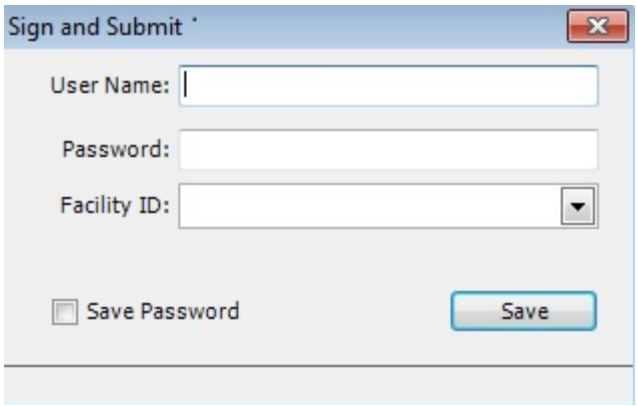


Figure 13: Sign and Submit Window

2. Enter your User Name and Password, and select the facility ID from the drop down that applies to the data package being submitted. If the Facilty ID does not exist, users can send a request to Region 5 contact to add it to the list.

3. Click the Save button, and verify if the facility you selected is corrected:

Figure 14: verify the facility

4. Click "Yes". Users will be prompted to provide a filename and location where you would like to save the file. The Sign and Submit feature will save an archived ("zipped") **file named with the current date, a period, the Facility ID, a period and the Format File name used to create the EDDs**. (Example file name: '20160811. MID000000001.EPAR5v3.zip'). The contents of the Zipped file includes text files named for the sections of the format used to create them.

5. Select Save. Once the zipped EDD Package has been saved the following screen will appear.

Figure 15: saved the EDD file

6. Select OK

After the zipped file has been created the EDD Package is ready to be submitted to your regulator for loading into EQuIS Professional EDP or EQuIS Enterprise EDP.

-Each EDD file naming convention

Each file, except the base map file, must be named according to the following convention:

Date.EPAID.EDDFileFormat_v3.txt (or .csv)

The first part of the file name is the site name, followed by the submittal date of the EDD with the format for the date being YYYYMMDD. The second part of the file name is the EPA ID number. The third part of the file name refers to the EDD file format for the file being submitted. The "_v3" suffix is an EPA marker to identify which version of the EDD specifications is being followed, and should not be changed by the data provider. The name of the site base map file should include the site name and EPAID and be saved in .dxf format.

As an example, the sampling data for the 1999 fourth quarter groundwater sampling round at the ABC site (EPA identification number of XYZ123456789) that is being submitted to EPA on February 19, 2016 would be reported in a file named **20160219.XYZ123456789.EPAR5SMP_v3.txt** (or .csv). In the above example, the chemistry sample file (EPAR5SMP_v3) is being submitted, therefore the EDD File Format portion of the file name is EPAR5SMP_v3. The last part of the file name is an extension that will be "txt" if the file was saved as a tab-delimited file or "csv" if it was saved as a comma–delimited file. Table 2-4 describes the naming formats and for the various Initial, Chemistry and Geology EDD files.

Table 2-4 EDD File Naming Formats

File Type	File Contents	EDD File Name	Submittal Type
Facility	File	Sitename.DXF, *.dwg, or shape files from ArcGIS, or Sitename.doc files from MS WORD for cover letters	Non-Recurring
Field	Data Provider	Date.EPAIDCode.EPAR5DataProvider_v3.txt	Initial
Field	Subfacility	Date.EPAIDCode.EPAR5Subfacility_v3.txt	Initial
Field	Location	Date.EPAIDCode.EPAR5LOC_v3.txt	Initial
Field	Drill Activity	Date.EPAIDCode.EPAR5DRA_v3.txt	Non-Recurring
Field	Lithology	Date.EPAIDCode.EPAR5LTH_v3.txt	Non-Recurring

Table 2-4 EDD File Naming Formats

File Type	File Contents	EDD File Name	Submittal Type
Field	Well	Date.EPAIDCode.Wel_v3.txt	Non-Recurring
Field	Well Construction	Date.EPAIDCode.EPAR5WSG_v3.txt	Non-Recurring
Field	Geotechnical Sample	Date.EPAIDCode.EPAR5GSMP_v3.txt	Non-Recurring
Field	Water Level	Date.EPAIDCode.EPAR5GWTR_v3.txt	Recurring
Field	Water Table	Date.EPAIDCode.EPAR5TBL_v3.txt	Non-Recurring
Field	Down Hole Point (CPT) Data	Date.EPAIDCode.EPAR5DHP_v3.txt	Non-Recurring
Field	Extraction – Injection Well	Date.EPAIDCode.EPAR5EIW_v3.txt	Recurring
Field	Soil Gas Data	Date.EPAIDCode.EPAR5SoilGas_v3.txt	Non Recurring
Lab	Sample	Date.EPAIDCode.EPAR5SMP_v3.txt	Recurring
Lab	Test Result	Date.EPAIDCode.EPAR5TRS_v3.txt	Recurring
Lab	Test/Results QC	Date.EPAIDCode.EPAR5TRSQC_v3.txt	Recurring
Lab	Batch	Date.EPAIDCode.EPAR5BAT_v3.txt	Recurring

2.5 Data Integrity Rules

Data providers are responsible for running three types of integrity checks on their data.

- **Validity:** All codes used in a data set must be valid. Valid values for all coded fields are either provided in the description columns of the tables in Sections 3, and 4 or in the tables in the Appendix of this manual. For example, sample matrix information is inputted in the sample_matrix_code field of the sample file and must be reported using one of the values provided in Table A-1 in the Appendix.

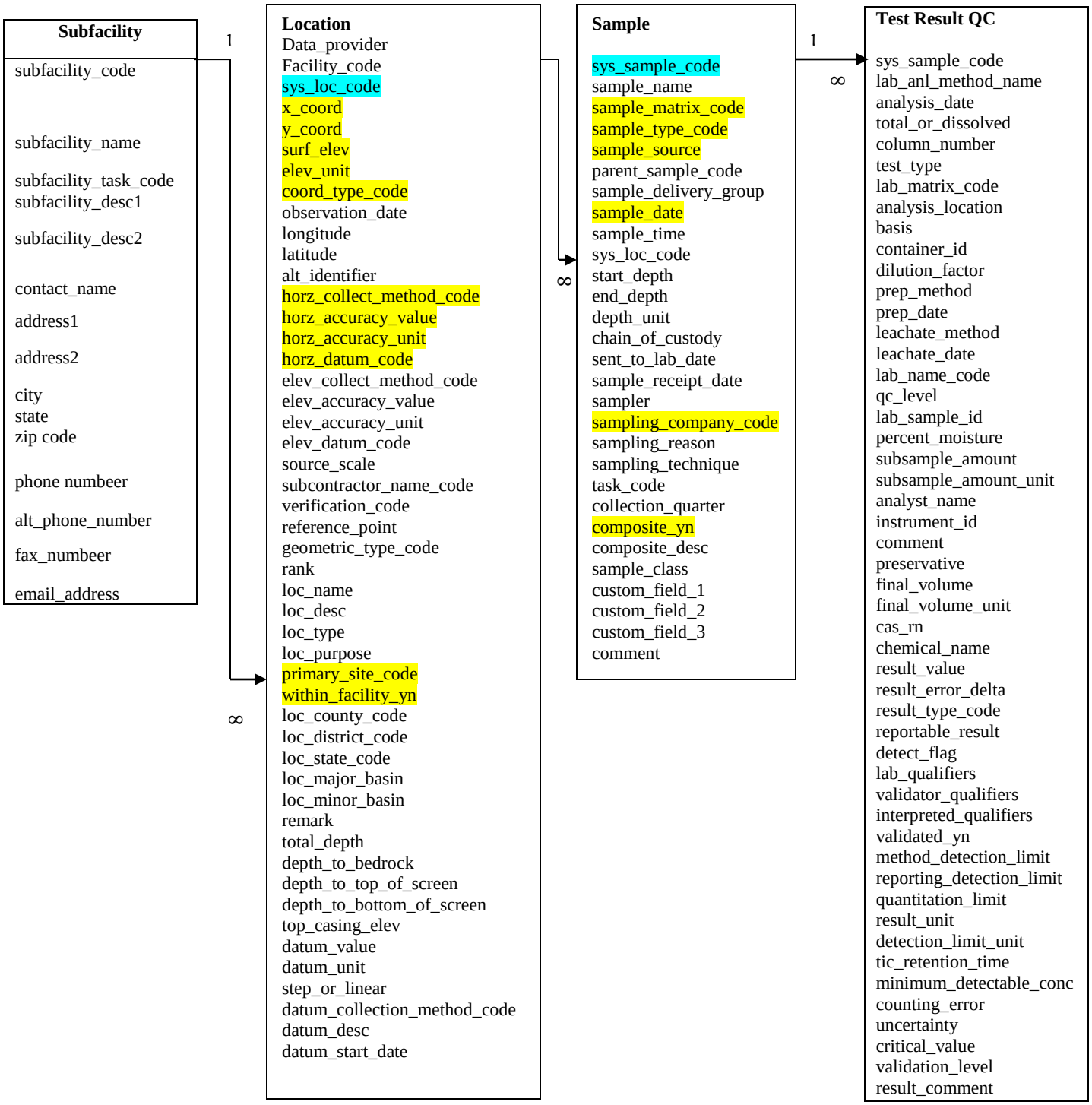
- **Row Uniqueness:** Row uniqueness must be verified using the guidance provided in Tables 2-1, 2-2, and 2-3. Row uniqueness is assured when no two rows in a file contain the same values for all the fields listed under the heading "What makes a row of data unique?" In database terminology this is called a primary key. For example, no two rows in the sample file can contain the same sys_sample_code (commonly called a sample identifier). In addition, no two rows ever reported for a single site can contain the same sys_sample_code. Each sys_sample_code must be unique for a site.

  Files that have a primary key consisting of multiple fields, such as the water level file, must have a different value in at least one of the prmary key fields. For example, no two rows in the water level file can have the same sys_loc_code, measurement_date. For example, two rows with sys_loc_code of "SB-01", measurement_date of "05/02/2000 00:00:00" would violate row uniqueness. However,

row uniqueness would not be violated if one row had a sys_loc_code of “SB-01”, measurement_date of “05/02/2000 00:00:00” and the other row had sys_loc_code of “SB-01”, measurement_date of “06/12/2000 00:00:00”.

- **Row Integrity:** The relationship between rows within the files of the EDD must be assured by enforcing the “referential integrity” rules discussed in Tables 2-1, 2-2, and 2-3 under the column labeled “Dependence of other files on these data.” For example, the values in the sys_sample_code field in the Test/Result file must match with the corresponding fields in the Sample file. Logical relationships between the various Lab EDD files are shown in Figure 2-1. The lines connecting the files show which column(s) (or field(s)) are related in the two files. The file on the side with the “1” at the end of the connecting line contains one row that is related to more than one row in the related file on the other side. For example, one row in a SUBFACILTY EDD file may correspond to many rows in a LOCATION EDD file because there are always more than one, and in most cases many locations, designated at a site. The logical relationship between the FIELD EDD files is limited to the requirement that all entries in the sys_loc_code fields appear in the LOCATION EDD file.

Figure 2-1 Relationships between Lab file data structures.

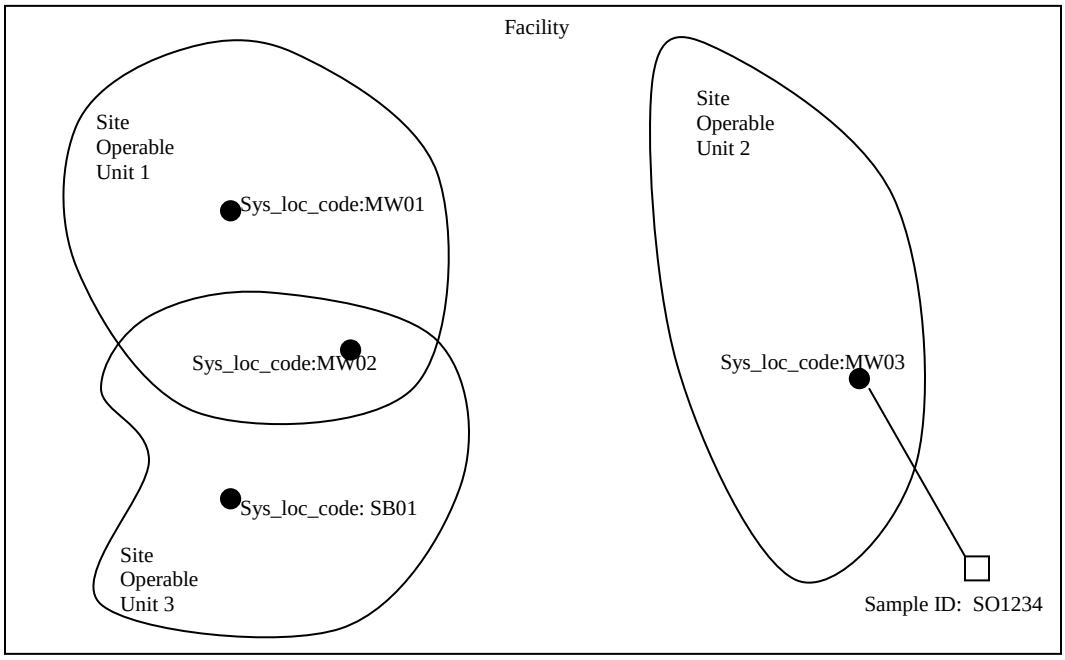


Shaded fields are required to have data. Blue fields define row uniqueness for the specified file.

2.6 Definition of a Facility, Site, and Location

To submit and error-free EDD, it is important to understand how EPA Region 5 defines facility, site, and location for the purposes of this EDD Specification Manual. Each facility (facility_id) will be identified with its EPA ID number (see Table A-22 in the Appendix.) As EPA requirement, a facility center point must be populated with the latitude and longitude centroid of the facility (*). The site (site_code) will be the operable unit identifier. There will always be at least one operable unit per facility. The way the location term is used is that each site can contain one or more locations, as long as they are distinct points defined by X and Y universal transverse Mercator (UTM) coordinates Examples of locations include soil borings, monitoring wells, and sampling locations. Each location identifier (sys_loc_code) must be unique for a facility.
Figure 2-2 provides a diagram of the facility components.

Figure 2-2 Facility component definitions



Facility ID = EPA ID #
Site = Site Operable Unit = site_code *Must be unique at a Facility*
Location= sample location = sys_loc_code Must *be unique at a Facility*

2.7 Reporting Null Values

When a field is not listed as required in Sections 3, and 4 and the data is not available or applicable, a null or blank may be appropriate. However, tabs or commas must still delimit the blank value. In other words, the number of fields is always the same, whether or not the fields include data. So a blank field in a tab-delimited file would appear as "<TAB><TAB>" and a blank field in a comma-delimited file would appear as ",,".Table 2-5 shows a number of examples.

Table 2-5 Examples of how to report null values

Example	Comment
"data_one"<tab>"data_two" <tab>"data_three" "data_one","data_two","data_three"	**O.K.** All fields populated, one tab or comma between fields.

Table 2-5 Examples of how to report null values

Example	Comment
"data_one" <tab><tab>"data_three" "data_one",,"data_three"	**O.K.** Optional field not populated, 2 tabs or 2 commas between first and third field.
"data_one" <tab>"data_three" "data_one","data_three"	**Not O.K**. Optional field omitted, only 1 tab or comma between first and third field.

2.8 Valid Values

Valid values, also known as reference values or code lists, govern the contents of some fields in the EDDs. In other words, some fields may only be populated with data that matches a value listed in the EPA Region 5 list of valid values. The lists of valid values are provided in the "Valid Values Table Reference Manual". A list of all the data fields that must contain valid values is presented in Table 2-6 (below). This list is also cross-referenced to the EDD file(s) the field appears in. If data providers need to enter a value not already in the Region 5 list in the Appendix, they can request the proposed addition to the valid value list in the EDD cover letter. The data provider should explicitly state the valid value that she/he would like added, provide a description of the value, and explain why the addition is necessary. In the case of requesting a new aboratory code, the data provider should include the full name of the laboratory and its address. When requesting an addition of an analyte, the data provider must include the appropriate CAS number or ERPMS code along with a description of the analyte.

Table 2-6 Cross-reference between the valid value tables in appendix and the EDD files

Valid Value Table Name	Table Number	Field Name	EDD File
Matrix	A-1	sample_matrix_code, lab_matrix_code	Chemistry Samples, Test/Results
Geometric type	A-2	Geometric_type_code	Location
Horizontal Collection Method	A-3	horz_collection_method_code	Location
Horizontal Accuracy Unit	A-4	horz_accuracy_unit	Location
Horizontal Datum	A-5	horz_datum_code	Location
Elevation Collection Method	A-6	elev_collect_method_code	Location
Elevation Datum	A-7	elev_datum_code	Location
Material	A-8	Material_type	Basic Geology
Location Type	A-9	loc_type	Location
Qualifier	A-10	lab_qualifiers, validator_qualifiers	Test/Results
Result Type	A-11	result_type_code	Test/Results
Sample Type	A-12	sample_type_code	Chemistry Samples
Geologic Unit	A-13	Geologic_unit_code	Geotechnical Samples
Standard Preparation Method	A-14	lab_prep_meth	Test/Results
Analyte	A-15	cas_rn, chemical_name	Test/Results
Lab Analysis Method Name	A-16	lab_anl_method_name	Test/ Results

Valid Value Table Name	Table Number	Field Name	EDD File
Laboratory	A-17	lab_name_code	Test/Results
Unit	A-18	various_unit fields throughout all files	All Files
Geology Soil Materials	A-19	material_type	Lithology, Geology Samples
Well Segment and Materials	A-20	segment_type, material_type_code	Well Construction
Hydrologic Unit Codes (HUC)-Basin	A-21	loc_major_basin	Location
EPA Facility IDs	A-22	facility_id, site_name	Site
Company code	A-23	Data_provider	Location, Sample, Test Result, Data Provider
Total or dissolved	A-24	Total_or_dissolved	Test Result, Test Result QC, Batch
Test Type	A-25	Test_type	Test Result, Test Result QC, Batch
Test Batch Type	A-26	Test_batch_type	Batch
Reference Point	A-31	reference_point	Location
Source_scale	A-32	Source_scale	Location

2.9 Reporting Re-Tests

For initial tests, all analytes should be reported. In the case where retests are performed on a sample, the result that is considered the reportable result should indicate a “Y” (for “yes”) in the reportable_result field. The initial test, and any retest result not considered reportable will have reportable_result set to "No". Table 2-7 provides examples of reporting re-tests.

Table 2-7 Example of reporting re-tests

Test Type	Chem Name	Cas rn	Result Value	Detect Flag	Lab Qualifiers	Reportable Result	Result_Comment
Initial	Benzene	71-43-2	1000	Y	E	No	too concentrated to quantitate
Initial	Toluene	108-88-3	5	N	U	Yes	not detected
Initial	Xylenes	1330-20-7	5	N	U	Yes	not detected
dilution1	Benzene	71-43-2	780	Y		Yes	Quantitated

2.10 Reporting Non-Detects

Non-detects must be reported as shown in the example below. Each non-detect row must show an “N” in the detect_flag field, must have an actual value entered in the reporting_detection_limit and detection_limit_unit fields, and must contain a null in the result_value_field. The reporting_detection_limit cannot be negative unless one of the radiological fields (including minimum_detectable_conc, counting_error, uncertainty, critical_value) are populated. Table 2-8 presents examples of how to report non-detects.

Table 2-8 Example of reporting non-detects

Cas rn	Result	Detect	Reporting	Detection	Result_comment	Laboratory_

	Value	Flag	Detection Limit	Limit Unit		qualifiers
108-88-3	.15	Y	.005	ug/ml		U
108-88-3		N	.005	ug/ml	not detected	U

2.11 Reporting Tentatively Identified Compounds

Tentatively Identified Compounds (TICs) should be reported when available. The naming of TICs should be applied in a cascade fashion. The TIC should be identified to analyte name if possible. If this is not possible, then the class of the TIC should be entered. If neither an analyte name nor a class can be identified, the TIC should be identified as Unknown. The EPA Region 5 EDD only allows for reporting up to 10 TICs. Only the 10 most concentrated or most relevant TICs should be reported. Table 2-9 shows examples of the nomenclature for TICs. As an example, if a sample has three Unknown Hydrocarbons, then the TICs are labeled UnkHydrocarb1, UnkHydrocarb2, and UnkHydrocarb3. TIC names are to be reported in the cas_rn field, Pos #31, of the Test/Result file (Tables 4-3 and Table 4-4). In addition, the result_type_code, Pos # 35 in the Test/Result file should have "TIC" for all TIC records.

Table 2-9 Example nomenclature for TIC reporting

TIC Name	Number for TIC	Reported Name in cas_rn
Unknown	1-10	Unknown1 – Unknown10
Unknown Hydrocarbon	1-10	UnkHydrocarb1 - UnkHydrocarb10
Unknown PAHs	1-10	UnkPAH1 - UnkPAH10
Unknown Aromatics	1-10	UnkAromatic1 - UnkAromatic10
Unknown VOA	1-10	UnkVOA1 - UnkVOA10
Unknown SV	1-10	UnkSV1 - UnkSV10

2.12 Data Types

The table below describes the data types used in the chemistry and geology file descriptions. In addition to the types listed below, certain fields have single and double data types. The single data type stores numbers from -3.402823×10^{38} to $-1.401298 \times 10^{-45}$ for negative values and from 1.401298×10^{45} to 3.402823×10^{38} for positive values, with a decimal precision of up to 7 digits. The double data type stores numbers from $-1.79769313486231 \times 10^{308}$ to $-4.94065645841247 \times 10^{-324}$ for negative values and from $1.79769313486231 \times 10^{308}$ to $4.94065645841247 \times 10^{-324}$ for positive values, with a decimal precision of up to 15 digits.

Table 2-10 Data type descriptions

Type	Description	Decimal Precision	Comments
Integer	Stores numbers from –32,768 to 32,767 (no fractions).	None	
'Y' or 'N'	Boolean field used to indicate yes or no to a question. Enter either Y or N.	NA	
Time	Time in 24-hr (military) HH:MM:SS format.	NA	Text (8) is standard length for time.
Date	Date format is MM/DD/YYYY.	NA	
Text	Stores characters and numbers.	NA	Length restrictions are indicated in parentheses.

2.13 Data Entry Tools Provided to Create the EDD Files

EDD files can be produced using any software with the capability to create text files. These files are especially easy to create using spreadsheet or database software packages. However, if these are unavailable, the files can be created using a word processor or text editor. Table 2-11 provides instructions for creating tab-delimited text files from some widely-used software packages.

Table 2-11 Instructions for producing tab-delimited text files from some software packages

Package	Type	Instructions
Access	Database	1. Create tables using file structures in Sections 3 and 4. 2. After data are entered, close table. 3. Click on table name (under table tab) and then select "File," "Save As," from the top menu. Save to an external file or database. Change "Save as Type" to a text file. Change the file extension from "txt" to "tab." Press OK. This will start the export wizard. 4. In the export wizard, select "Delimited," then press the "Next" button. Select "Tab" as the delimiter type and " as the text qualifier. Press the "Next" button. Select a destination and name for the file. Press the "Finish" button.
Excel	Spreadsheet	1. Select "File," "Save As," from the top menu. Change "Save as Type" to a "Text (Tab Delimited)" file. Press the "Save" button.
Quattro® v8	Spreadsheet	1. Select "File," "Save As," from the top menu. Change the "File Type" to "ASCII Text (Tab Delimited)." Press the "Save Button."
Word	Word Processor	[Note: A word processor is not the best tool for the job! A large paper size will have to be selected to prevent wrapping for most files.] [wrapping?] 1. Enter data into a table in Word. Any text entered must be contained within double quotes. 2. Select "Table," "Select Table," from the top menu. When the table is highlighted, select "Table," "Convert to Text," "Separate Text with Tabs." 3. Select "File," "Save As," from the top menu. Change "Save as Type" to "MS DOS Text (*.txt).
Lotus 1-2-3	Spreadsheet	1. Select "File," "Save As," from the top menu. Change "Save as Type" to a "Comma Separated Value (CSV)" file. Provide file name. Press the "Save" button.

2.14 Using the Electronic Data Processor to Check EDD Formatting

The Electronic Data Processor (EDP) can be used by Data Providers to check EDD files prior to submittal to EPA Region 5. The EDP is a no-cost application that performs a series of formatting checks on the files and then identifies any records that have errors along with a description of the errors. This allows the Data Provider to correct the errors before sending the files to EPA Region 5. EDD files that pass through the EDP error-free should also result in error-free import at EPA Region 5.

EDP is currently available as a no-cost download from the EPA Region 5 website located at at https://www.epa.gov/superfund/region-5-superfund-electronic-data-submission. Instructions on how to install and use the EDP are also provided on the website.

2.15 Submitting Your EDD to EPA Region 5

Each EDD must be checked using the EDP and the most updated EDD format before submitting to EPA Region 5. Please follow the three steps below to submit your EDD data:

Email to get the username, password:

-Send email to canal.john@epa.gov to get the username, and password. Data providers are required to get the username, and password to use the **Sign and Submit** process to create a **EDD zip package** after the data has been checked with the EDP with no errors. The Sign and Submit process allows data provider to save the EDD in their preferred folder or directory. The EDD zip package should be named using the naming convention that was shown in section 2.4.

FTP Server

- Once the EDD zip file has been created, the EDD is ready to be dropped to the FTP server. Data provider can use any web browser to access the FTP server:

ftp://207.198.109.12/
User: epar5-submitters
Password: Rure7haXuhEdrab

Notify EPA Region 5 when the data is dropped to the FTP Server:

Please notify the EDD database adminstrator canal.john@epa.gov for each EDD that has been dropped to the FTP Server.

EDD submittal types

There are three possible EDD submittal types: an original submittal, an error correction resubmittal, and an update submittal. These three EDD types are described below.

- **Original Submittal**: An original EDD submittal contains data being submitted for the first time to EPA Region 5. EPA Region 5 will process and check the EDD. If there are no errors in any of the EDD files, EPA will import the data to the permanent database. EPA Region 5 can only import and accept the EDD submittal if all files in the submittal are error-free. If any of the files on the EDD contain errors, EPA will send the data provider a letter specifying the errors that need to be corrected.

- **Correction Resubmittal**: In the case where an original EDD submittal contains errors, the entire EDD submittal will be returned to the data provider along with an error report explaining the problems identified. The data provider should then correct the errors, check the files again with the EDP, and then resubmit the entire EDD. A response is required within 30 days. It is important that the resubmitted EDD contain all of the files and the SAME FILE NAMES (i.e.,

use the same site name and submittal date in the file name as was used in the original submittal) as those in the original submittal. Thus, the EDD resubmittal will be identical to the original submittal in everyway except the errors are corrected.

- **Update Submittal:** This type of submittal updates data that has previously been accepted by EPA Region 5. The files of an update submittal should follow the normal naming convention of an EDD submittal and contain only data for the records being updated. For example, say a data provider submits an EDD in 2014 that includes a location file (e.g., 20014121.EPAID.EPAR5LOC_v3.txt) that contains ten locations, and the EDD is accepted by EPA Region 5 and loaded into the EPA database. If, in 2016, the site is resurveyed, and it is discovered that three of the locations' coordinate information has changed due to increased accuracy, a new location file containing data for only those three locations would need to be submitted as an update submittal. The update submittal would be named using the current submittal date of the update (e.g., 20160108.EPAID.EPAR5LOC_v3.txt). Note: All required fields need to be populated for the three locations regardless of whether or not these fields were updated. The reason for the update submittal and the records that have been changed must be clearly indicated in the cover letter accompanying the updated EDD.

2.16 Examples of Field, and Lab EDD Files

Examples of Field and Lab EDD files with the first few rows of the EDD populated with a typical data set are presented in Figures 2-3, 2-4, 2-5, and 2-6. These examples were produced using Excel worksheets. To submit these files, the data provider would save the files as text delimited files (txt) or comma separated files (csv), check the files using the EDP, and then send the error free files to Region 5. In order to fit the examples on one page, not all of the fields (i.e., columns) were included for certain files (e.g., Subfacility, Location, and Sample). The notation "*Additional Fields"* has been inserted where, for purposes of these examples, one or more fields have been omitted. It should be noted that all fields must appear in the EDD files you submit regardless of whether or not the field is populated (see Section 2.7 regarding reporting blanks, or "null" values). Special cases discussed in previous sections of this manual, as well as more standard types of data, are illustrated below.

Figure 2-3. Example Field EDD ready for conversion to text file

Subfacilty File (EPAR5SUBFACILITY_v3):

subfacility_code	subfacility_name	subfacility_task_code	subfacility_desc1	subfacility_desc2	contact_name	address1	*Additional Fields*	email_address
01	Facility Name				John Smith	23 Main Street		abc@abd.com

Location File (EPAR5LOC_v3):

Data_provider	Facility_code	sys_loc_code	X_coord	Y_coord	surf_elev	elev_unit	coord_sys_desc	observation_date	Longitude	Latitude	identifier	*Additional Fields*	comment
ABD	MID0000001	MW01	573535.16	46185.25	120.2	ft	UTM Zone 16	02/21/2015	440022.31	399612.23	1		
ABD	MID0000001	SB-01	571535.28	46185.22	126.3	ft	UTM Zone 16	02/23/2015 9	442430.31	393574.22	1		
ABD	MID0000001	MW03	571525.28	47558.33	130.1	ft	UTM Zone 16	02/22/2015	442470.22	399701.25	1		
ABD	MID0000001	MW04	561528.33	46004.25	130.1	ft	UTM Zone 16	02/22/2015	442356.51	399701.48	1		

Figure 2-4. Example Lab EDD ready for conversion to text file

Sample File (EPAR5SMP_v3):

Data_provider	sys_sample_code	sample_name	sample_matrix_code	sample_type_code	sample_source	parent_sample_code	sample_delivery_group	sample_date	sys_loc_code	*Additional Fields*	comment
ABD	MW-01_20150401		WG	N	Field			04/01/201512:00:00	MW01		
ABDE	MW-02_20150401		WG	N	Field			04/01/2015 12:00:00	MW02		

Test Result QC File (EPAR5TRSQC_v3):

sys_sample_ code	lab_anl_ method_ name	*Additional Fields*	total_or_ dissolved	column_ number	test_ type	lab_matrix _code	analysis_ location	basis	*Additional Fields*	dilution_ factor	lab_ name_ code	qc_ level	lab_ sample id_	*Additional Fields*
MW-01_20150401	SW8240		T		Initial	WG	LB	Wet		1.0	ABC	quant	LAB01	
MW-01_20150401	SW8240		T		Initial	WG	LB	Wet		1.0	ABC	quant	LAB02	
MW-01_20150401	SW8240		T		Reanalysis	WG	LB	Wet		10.0	ABC	quant	LAB02R	

Test Result QC (EPAR5TRSQC_v3) (Continue):

cas_rn	chemical_ name	result_ value	result_ error_ delta	result_ type_ code	reportable _result	detect_flag	lab_ qualifiers	Validated_yn	Method_detection_limit	reporting_ detection _limit	Quantitation _limit	result_ units	*Additional Fields*	result_ comment
71-43-2	BENZENE	12		TRG	Yes	Y		Y		10		ug/ml		
108-88-3	TOLUENE			TRG	Yes	N		Y		10		ug/ml		
1330-20-7	XYLENES			TRG	Yes	N		Y		10		ug/ml		

Figure 2-5. Examples of QC data fields in a Chemistry EDD

QC fields in a normal field sample (i.e., sample_type_code = N, TB, etc.)

The following table shows some of the fields in the test/result (TRS) file for a normal field sample. Notice that all QC fields are blank.

cas_rn	result_value	qc_original _conc	qc_spike_ added	qc_spike_ measured	qc_spike_ recovery	qc_dup_ original_ conc	qc_dup_ spike_ added	qc_dup_ spike_ measured	qc_dup_ spike_ recovery
93-76-5	1.56								
94-75-7	3.17								
94-82-6	2.31								

QC fields in a normal field sample with surrogates (i.e., sample_type_code = N, TB, etc.)

The following table shows some of the fields in the test/result file (TRS) for a normal field sample. Notice that QC fields are blank except in rows related to surrogate samples. . Many data providers will only need to populate the recovery field data; the spike-added and spike-measured fields will not be needed in most situations.

Cas_rn	result_value	result_unit	result_type_ code	qc_original_ conc	qc_spike_added	qc_spike_ measured	qc_spike_ recovery
93-76-5	1.56	mg/l	TRG				
94-75-7	3.17	mg/l	TRG				
PHEN2F		mg/l	SUR		12.5	12.9	103

QC fields in a laboratory method blank sample (i.e., sample_type_code = LB)

The following table shows some of the fields in the test/result file for a laboratory method blank sample. Notice that all QC fields are blank.

cas_rn	result_ value	lab_ qualifier	qc_ original_ conc	qc_spike_ added	qc_spike_ measured	qc_spike_ recovery	qc_dup_ original_ conc	qc_dup_ spike_ added	qc_dup_ spike_ measured	qc_dup_ spike_ recovery
93-76-5		U								
94-75-7		U								
94-82-6	0.01									

Figure 2-5. Examples of QC data fields in a Chemistry EDD (continued)

QC fields in a matrix spike (i.e., sample_type_code = MS*)*

The following table shows some of the fields in the test/result file for a matrix spike sample. Notice that all "dup" QC fields are blank and that the result_value field is not needed. Also, the qc_rpd field would be blank for these rows. Many data providers will only need to populate the calculated recovery field (qc_spike_recovery).

cas_rn	result_ value	qc_ original_ conc	qc_spike_ added	qc_spike_ measured	qc_spike_ recovery	Qc_rpd	qc_dup_ original_ conc	qc_dup_ spike_ added	qc_dup_ spike_ measured	qc_dup_ spike_ recovery
93-76-5		1.56	4.18	5.36	90.9					
94-75-7		3.17	4.18	7.15	95.2					
94-82-6		2.31	4.22	5.66	79.3					

QC fields in a matrix spike duplicate (i.e., sample_type_code = SD*)*

The following table shows some of the fields in the test/result file for a matrix spike duplicate sample. Notice that all "dup" QC fields are filled in and that the result_value field is not needed. Also, the qc_rpd field would be completed for these rows. Many data providers will only need to populate the calculated recovery field (qc_dup_spike_recovery).

cas_rn	result_ value	qc_ original_ conc	qc_spike_ added	qc_spike_ measured	qc_spike_ recovery	Qc_rpd	qc_dup_ original_ conc	qc_dup_ spike_ added	qc_dup_ spike_ measured	qc_dup_ spike_ recovery
93-76-5						10	1.56	4.23	5.70	97.8
94-75-7						12	3.17	4.23	7.62	105
94-82-6						15	2.31	4.13	5.33	73.1

QC fields in a matrix spike/matrix spike duplicate (i.e., sample_type_code = MSD)

The following table shows some of the fields in the test/result file for a matrix spike/matrix spike duplicate considered as a single sample . (Note: Matrix spike and matrix spike duplicate samples can be reported either this way or as two separate samples as shown above). Notice that all QC fields are filled in and the result_value field is not needed. Also, the qc_rpd field would be completed for these rows. Many data providers will only need to populate the calculated recovery fields (qc_spike_recovery and qc_dup_spike_recovery).

cas_rn	result_ value	qc_ original_ conc	qc_spike_ added	qc_spike_ measured	qc_spike_ recovery	Qc_rpd	qc_dup_ original_ conc	qc_dup spike_ added	qc_dup spike_ measured	qc_dup spike_ recovery
93-76-5		1.56	4.18	5.36	90.9	7	1.56	4.23	5.70	97.8
94-75-7		3.17	4.18	7.15	95.2	10	3.17	4.23	7.62	105
94-82-6		2.31	4.22	5.66	79.3	8	2.31	4.13	5.33	73.1

QC fields in a LCS (i.e., laboratory control sample, blank spike, sample_type_code = BS)

The following table shows some of the fields in the test/result file for an LCS sample. The qc_rpd field would be blank for these rows. Many data providers will only need to populate the calculated recovery field (qc_spike_recovery). LCS duplicate samples (i.e., sample_type_code = BD) and LCS/LCSD samples (i.e., sample_type_code = BSD) follow the patterns similar to the SD and MSD samples described above.

cas_rn	result _value	qc_original _conc	qc_spike_ added	qc_spike_ measured	qc_spike_ recovery	qc_dup_ original_ conc	qc_dup_ spike_ added	qc_dup_ spike_ measured	qc_dup_ spike_ recovery
93-76-5			5.00	5.26	105				
94-75-7			1.00	1.02	102				
94-82-6			12.5	12.9	103				

Figure 2-6. Example Field EDD ready for conversion to text file

Drill Activity File:

sys_loc_code	drill_event	start_depth	end_depth	drill_date	diameter	*Additional Fields*	purpose
W-4A	1a	40	80	07/12/1999	8		Advanced well additional 40 feet to reach lower aquifer
W-6B	2c	45	110	07/14/1999	8		Advanced well 55 feet to reach bedrock.

Lithology File:

sys_loc_ code	start_ depth	material_ type	geo_unit_1	*Additional Fields*	Remark_1	*Additional Fields*	odor
W-1A	0	CL	Glacial		grayish brown clay, trace fine sand, med strength, med plastic, rapid dilatancy ,some brick fragments		
W-1A	10	SW	Outwash		med dense, 50% fine to coarse brown sand, 30% gravel, dry, trace clay		
W-1A	23	SP	Outwash		dense, 70% coarse brown sand, 20% gravel, poorly graded, rounded, moist		
W-2A	0	ML	Alluvial		Dark brown silt with little fine sand, low strength, nonplastic, rapid dilatancy		

Well File:

sys_loc_code	*Additional Fields*	top_casing_elev	datum_value	datum_unit	datum_desc	*Additional Fields*	geologic_unit_ code	remark
W-1A		122.0	122.0	ft	top of casing of well		outwash	
W-2A		122.3	122.3	ft	top of casing of well		alluvial	

Figure 2-6. Example Field EDD for new monitoring wells or direct push samples ready for conversion to text file (continued)

Well Construction File

sys_loc_code	segment_type	material_type_code	start_depth	end_depth	depth_unit	inside_diameter	*Additional Fields*	remark
W-1A	surface plug	concrete	0	1.5	ft	4.5		
W-1A	annular backfill	neat cement grout	1.5	8	ft	2.375		
W-1A	annular Seal	Bentonite pellets	8	8	ft	2.375		
W-1A	Filter Pack	sand pack	8	23.1	ft	2.375		
W-1A	Protective Casing	steel	-2.2	3.2	ft	4		
W-1A	Casing	stainless steel 304	-2.1	24	ft	2		
W-1A	Screen	stainless steel 304	24	29	ft	2		
W-2A	protective casing	steel	-2.0	3.0	ft	2		
W-2A	surface plug	concrete	0	1.5	ft	4.5		
W-2A	annular backfill	neat cement grout	1.5	10	ft	2.375		

Geology Sample File:

sys_loc_code	Geo_sample_code	sample_name	sample_top	sample_bottom	sample_date	*Additional Fields*	sample_method	material_type	*Additional Fields*	organic_carbon _units
W-1A	ABCD-1		4	6	04/23/1999 00:00:00		split spoon	SW		
W-1A	ABCD-2		14	16	04/23/1999 00:00:00		split spoon	SW		
W-2A	DEFG-1		5	7	04/24/1999		split spoon	SP		

Figure 2-6. Example Geology EDD for new monitoring wells or direct push samples ready for conversion to text file (continued)

Water Table File:

sys_loc_code	Type	sequence	Depth	flowing_yn	measurement_method	capped_pressure	capped_pressure _unit	*Additional Fields*	temperature _unit
MW01	Unconfined	stable	21.2	y	electric sensor				
MW02	Unconfined	stable	21.0	y	electric sensor				

Downhole Point File:

sys_loc_code	Depth	param	param_value
MW01	10.8	Tip Stress	612
MW01	11.2	Tip Stress	624
MW01	10.8	Sleeve Stress	6.1
MW01	11.2	Sleeve stress	5.8
MW02	9.5	Resistivity	510
MW02	10.1	Resistivity	521
MW02	11.0	Resistivity	489

Water Level File:

sys_loc_code	measurement _date	historical_ref_elev	water_level_depth	water_level_elev	corrected_elev	*Additional Fields*	remark
MW01	05/10/1999 13:10:00		31.1	89.1			
MW02	05/10/1999 13:45:00		34.1	89.0			

Extraction Injection Wells

sys_loc _code	Start_ measurement _date	end_measure _date	avg_pump_rate	pump_rate_unit	*Additional Fields*	remark
EX-01	05/12/2000 11:23:00	06/12/2000 11:30:00	2.5	mgd		
EX-02	11/12/2000 12:00:00	12/12/2000 13:10:00	1.75	mgd		

3. FORMATS FOR Facility Files and Field Files

This section contains information regarding the base map and the two files included in the Facility EDD. These files need to be submitted prior to, or in conjunction with, the first Field EDD submittals These files only need to be submitted once unless information in the files changes or additional information, such a new sampling location, needs to be added. Columns marked "Required" must be reported for each row in the file. If these fields are not reported, errors will be identified in the EDD and the EDD will need to be resubmitted. Columns marked "If available" should also be reported if possible.

3.1 Facility EDD Files

Site Base Maps in the file section (Files_v3)
Site base maps can be submitted in CAD files in a DXF interchange format, or drawing (.dwg) file, or Shapfiles generated from ArcGIS. The maps should include all well locations, waste management units, landfills, buildings, and roads. **Do not include any groundwater contours, contaminant contours, or other temporal type information.** If the CAD file is available in real world locational coordinates, provide the coordinates along with a brief text description of the type of projection and datum used. (Note: UTM NAD 83 is the data type preferred by EPA Region 5). Also include text descriptions of the units and scale of the base map. The site base map file should be named according to the following example:

SiteName.DXF (or dwg, or shape files)

The file section allows you to load supplementary information into EQuIS, such as Map, drawing files. The naming convention of the File_v3 is:

Date.EPAID.File_v3.txt (or .csv)

Table 3-1 Files (Files_v3) structure

Pos#	Column Name	Data type	Required	Description	Valid Values In Appendix
1	File_name	Text (255)	Yes	Name of the file	No
2	File_type	Text (20)	Yes	Type of the file	No
3	File_date	Date time	If available	Date of the file	No
4	Title	Text (255)	If available	Title of the file	No
5	Author	Text (255)	If available	Author of the file	No
6	Confidential _yn	Text (1)	If available	Whether or not the file is confidential	No
7	Remark	Text (255)	If available	Remark for the file	No
8	Place_type	Text (50)	If available	Type of the place tis file is associated with	No
9	Place_code	Text (50)	If available	Code/identifier of the place this file is associate with	No
10	Place_subcode	Text (50)	If available	Subcode/ identifier of the place this file is associated with	No
11	Content			Content of the file	No

3.2. Field Files-DATAPROVIDER

This section contains tables that define the file structures for the FIELD EDD. The file structures include the first three initial EDD files: Data Provier, Subfacility, and Locations, also the drilling activity, lithology, well, well construction, geotechnical samples, water levels, Water Table, downhole point, extraction injection wells, and Soil Gas data. The columns marked "Required" must be reported for each row in the file. If an EDD is submitted with one or more "Required" fields not filled in, EPA will not be able to load the EDD into its database, and the EDD will have to be returned to the data provider for correction(s). The columns marked "If available" should also be reported whenever possible. Examples of the EDD files that make up the Field EDDs are provided in Figure 2-6, section 2.16.

Data Provider (EPAR5DATAPROVIDER_v3)

The Data Provider EDD file provides general information about the data provider who is the contact for the data on the site.

Date.EPAIDCode.EPAR5DataProvider_v3.txt (or .csv)

Table 3-2 Data Provider (EPAR5DataProvider_v3) File Structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
1	Data_Provider	Text(20)	Required	This is the name of the company who is responsible for providing the site data.	A-23
2	Data_Contact _Person	Text(30)	Not Required	This is the name of the contact person who is responsible for providing the site data.	No
3	Data_Contact _Address1	Text (40)	Not required	Data Provider address 1	No
4	Data_Contact _Address2	Text (40)	Not required	Data Provider address 2	No
5	Data_Contact _City	Text (30)	Not required	Data Provider city	No
6	Data_Contact _State	Text(5)	If Available	Contact state	No
7	Data_Contact_zi pcode	Text(10)	Not required	Contact zip	No
8	Data_Contact _email	Text(60)	Required	Contact email address	No
9	Data_Contact _Phone	Text(30)	Not Required	Contact phone number	No

3.3 SUBFACILITY EDD File

The SUBFACILITY EDD file provides general information about a site and provides the name, e-mail address, and other contact information for the main EDD data contact for the site. An example of a Subfacility file is provided in Figure 2-3, section 2.16. **NOTE**: If the SUBFACILITY EDD file was previously submitted, including as part of a "Historic Data EDD", as described in the Region 5 "EDD Manual for Historical Data", you DO NOT need to resubmit the file again.
Each SUBFACILITY file must be named according to the following convention:

Date.EPAIDCode.EPAR5SUBFACILITY_v3.txt (or .csv)

Table 3-3 SUBFACILITY (EPAR5SUBFACILITY_v3) data file structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
1	SUBFACILITY_code	Text(3)	Required	Code indicating the site operable unit for which the data is collected, or area of concern (AOC). Typically the code is "01" unless there is a second or third operable unit at facility. Codes of "02" and "03" should be used for second and third operable units, respectively. Contact the EPA RPM if unsure of proper code.	No
2	subfacility_name	Text(60)	Required	Name of site	Table A-22
3	site_task_code	Text(10)	Required	Code used to identify the task under which the site or area is investigated. This field is for informational purposes only. Field samples are formally associated with task codes.	No
4	subfacility_desc1	Text(255)	If available	General description of the site.	No
5	subfacility_desc2	Text(255)	If available	Additional description of site, if necessary.	No
6	contact_name	Text(50)	Required	Name of person to contact if EPA Region 5 has any questions about the EDD.	No
7	address1	Text(40)	Required	Site address, part one.	No
8	address2	Text(40)	Not required	Site address, part two. Default to null if information is not needed	No
9	City	Text(30)	Required	Site city.	No
10	State	Text(2)	Required	Site state.	No
11	Zipcode	Text(10)	Required	Site zip code.	No
12	phone_number	Text(30)	Required	Site contact phone number.	No
13	alt_phone_number	Text(30)	If available	Alternate phone number for site contact. Default to null where the data are not available.	No
14	fax_number	Text(30)	If available	Fax number of site contact. Default to null where the data is not available.	No
15	email_address	Text(100)	Required	Site contact e-mail address.	No

3.4 Location EDD File (EPAR5LOC_v3)

The primary purpose of the Location EDD file is to define the sampling locations for a site. Each EPA ID must have a center point identified. The location section will be used to enter the center point. This file is referred to as one of the Initial EDD files because it needs to be submitted -- and error-free -- before EDD files that contain chemistry and geology data can be used. Each row of the Location file contains the definition of a unique sampling location. Do not create any records (i.e., rows) for any samples not associated with a specific sampling location, such as field blanks and trip blanks. In the case of multiple wells located in one borehole, each well in the borehole must have a unique sampling location identifier (sys_loc_code).

Each sampling location should only be reported once for a site. The only time data a previously reported location should be resubmitted is if some information about the location changes, such as when a location

is resurveyed after settling has occurred or after a resurvey using an instrument or methodology with higher accuracy. When resubmitting changes to the Location file, the file should contain rows pertaining to the affected locations only. As in a typical EDD submittal, all "required" fields should be populated when updating data. Changes in the resubmittal should be described in the cover letter accompanying the EDD, and the EPA RPM should receive a copy of the letter or should be otherwise notified. See section 2.15 "Submitting Your EDD to EPA" for more information regarding submitting updated data files.

The data structure of the LOCATION EDD file includes fields (Table 3-4 below) to collect data requirements of EPA's Locational Data Policy (LDP). LDP requires geographic coordinates and associated method, accuracy, and description (MAD) codes for all environmental measurements collected by EPA employees, contractors, and grantees. A key premise of the LDP policy is that secondary use of these data in geographic information systems (GIS) and statistical mapping programs are significant to the overall mission of the Agency. To facilitate the integration of data, EPA has established the LDP to standardize the coding of geologic coordinates and associated attributes. Therefore, in addition to location coordinates being reported in UTM meters, Region 5 requests that coordinates be reported in latitude and longitude, along with associated attributes, if the data is available. An example of a Location file is provided in Figure 2-3, section 2.16.

Each Location file must be named according to the following convention:

Date.EPAIDCode.EPAR5LOC_v3.txt (or .csv)

Table 3-4 Location Data (EPAR5LOC_v3) File Structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
1	Data Provider	Text(20)	Required	Data Prodiver company code	A-23
2	Facility_code	Text (20)	Required	Facility ID	A-22
3	sys_loc_code	Text(20)	Required	Location ID, such as MW-01, A24, SW12, or SB-2S, for all samples collected, including groundwater samples, hydropunch samples, surface water/sediment samples, and soil samples. For facility center point, sys_loc_code = "FAC CENTER POINT"	No
4	X_coord	Number w/decimal precision up to 15	Required	Latitude of sampling location in UTM Zone nn (xxxxxx.xx).	No
5	Y_coord	Number w/decimal precision up to 15	Required	Longitude of sampling location in UTM Zone nn (xxxxxx.xx).	No

Table 3-4 Location Data (EPAR5LOC_v3) File Structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
6	surf_elev	Number w/decimal precision up to 15	Not Required	Elevation of the ground surface, or if location is for surface water samples, water surface elevation. For water surface elevation, use the average annual elevation. Note: Subsequent water surface elevations should be obtained during the surface water sampling period and reported in the Water Level EDD file (see sections 4.2 and 4.4).	No
7	elev_unit	Text(15)	Required	Unit of measurement for elevations.	Units must be in ft/m
8	coord_sys_desc	Text(20)	Required	Sampling location coordinate system description. Must be in decimal degrees, Latitude and Longitude. Use the value 'LAT LONG'	No
9	observation_date	DateTime	Not required	Date observation or site survey was made.	*No*
10	Longitude	Text(20)	Not required	X_ state plane or UTM NAD83 coordinate	No
11	Latitude	Text(20)	Not required	Y_ state plane or UTM NAD83 coordinate	No
12	identifier	Text(20)	Not required	Use State Plane or UTM NAD83. Code for the coordinate type used for alt_x and alt_y. Values are: 'UTM ZONE 17', 'UTM ZONE 18', 'SP'	No
13	horz_collect_method_code	Text(2)	If available	Method used to determine the latitude/longitude measurements. Horizontal Collection Method.	Table A-3
14	horz_accuracy_value	Text(20)	Not required	Accuracy range (+/-) of the latitude and longitude. Only the least accurate measurement should be reported, regardless if it is for latitude or longitude.	No
15	horz_accuracy_unit	Text(1)	If available	Unit of the horizontal accuracy value.	Table A-4. Enumeration list contains the codes and description
16	horz_datum_code	Text(1)	If available	Reference datum of the x_coord and y_coord	Table A-5

Table 3-4 Location Data (EPAR5LOC_v3) File Structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
17	elev_collect_method_code	Text(2)	If available	Method used to determine the ground elevation of the sampling location.	Table A-6
18	elev_accuracy_value	Text(20)	Not required	Accuracy range (+/-) of the elevation measurement.	
19	elev_accuracy_unit	Text(8)	Not required	Unit of the elevation accuracy value.	Table A-18. Enumberation list contains the codes and description.
20	elev_datum_code	Text(1)	If available	Reference datum for the elevation measurement	Table A-7
21	source_scale	Text(2)	Not required	Scale of source used to determine the x_coord and y_coord.	Table A-32
22	subcontractor_name_code	Text(20)	If available	Code used to distinguish subcontractor name.	Table A-23
23	verification_code	Text(1)	Not required	This field is only to be used by EPA Region 5 personnel. Please leave blank.	No
24	reference_point	Text(2)	Not required	Describes the place at which coordinates were established. Use codes from Table A-2 in the Appendix.	Tabel A-31 Enumeration list is available in this field.
25	geometric_type_code	Text(20)	If available	Value: 'POINT'	A-2
26	Rank	Numeric	Not required	This field is for by EPA Region 5 future use. Please leave blank.	No
27	loc_name	Text(40)	Not required	Sampling location name.	No
28	loc_desc	Text(255)	Not required	Sampling location description.	No
29	loc_type	Text(10)	If available	Description of sampling type, such as direct push, extraction well, or sediment. Use "CENTROID" to identify facility center point. Use codes from Table A-9 in the Appendix.	Table A-9
30	loc_purpose	Text(20)	Not required	Sampling location purpose.	No
31	Primary_subfacility_code	Text(3)	Required	Unique code for site or area. Must match subfacility_code field from Table 3-3: Subfacility File Data Structure.	No
32	within_facility_yn	Text(1)	Required	Indicates whether this sampling location is within facility boundaries, "Y" for yes or "N" for no.	No

Table 3-4 Location Data (EPAR5LOC_v3) File Structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
33	loc_county_code	Text(20)	Not required	Location county code; controlled vocabulary using FIPS (Federal Information Processing Standard) codes. FIPS codes can be found via the internet at https://www.epa.gov/envirо/state-fips-code-listing	No
34	loc_district_code	Text(20)	Not required	Use the EPA region code '005'	No
35	loc_state_code	Text(10)	If available	Location state code; controlled vocabulary using FIPS codes.	No
36	loc_major_basin	Text(8)	If available	Location major basin; controlled vocabulary using HUC (hydrologic unit codes	Table A-21
37	loc_minor_basin	Text(20)	Not required	Location minor basin; controlled vocabulary using HUC codes. Any digits after the 8th (first 8 are reported in loc_major_basin) should be reported here.	No
38	Remarks	Text(255)	Not required	Location specific comment.	No
39	total_depth	Number w/decimal precision up to 15	Not required	Total depth below ground surface of boring, in feet.	No
40	depth_to_bedrock	Number w/decimal precision up to 15	Not required	Depth below ground surface of bedrock in feet.	No
41	depth_to top_of_screen	Number w/decimal precision up to 15	Not required	Depth in feet below ground surface to the top of the well screen. This information is required to obtain the vertical location from which the groundwater sample was taken. Leave null if well is not at this location.	No

Table 3-4 Location Data (EPAR5LOC_v3) File Structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
42	depth_to_bottom_of_screen	Number w/decimal precision up to 15	Not required	Depth in feet below ground surface to bottom of well screen. This information is required to obtain the vertical location from which the groundwater sample was taken. Leave null if well is not at this location.	No
43	top_casing_elev	Number w/decimal precision up to 15	Not required	Elevation of the top of casing in feet. Leave null if well is not at this location.	No
44	datum_value	Number w/decimal precision up to 15	Not required	Datum value	No
45	datum_unit	Text (15)	If available	Datum unit	Table A-18
46	step_or_linear	Text (6)	Not required	This field is for by EPA Region 5 future use. Please leave null. Value: 'Step', 'Linear'	No
47	datum_collect_method_code	Text (2)	Not required	Datum collect method	No
48	datum_desc	Text(70)	Not required	Datum description	No
49	Datum_start_date	DateTime	Not required	Datum start date	No

3.5 Drill Activity EDD File

The drill activity (DRA) EDD file contains general information pertaining to the drilling activities resulting from the soil boring. Each drill activity file must be named according to the following convention:

Date.EPAIDCode.EPAR5DRA_v3.txt (or .csv)

Table 3-5 Drill activity (EPAR5DRA_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
1	sys_loc_code	Text (20)	Required	Soil boring or well installation location. Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the location EDD file (Table 3-4) submitted in the current or previous EDD.	No

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
2	drill_event	Text (20)	Required	Used to identify drilling event. Examples of drilling events could be "initial" for initial drilling or "second" for a subsequent drilling at the same sys_loc_code.	No
3	start_depth	Number w/decimal precision up to 7	Not required	The start depth, in feet below ground surface, of the drilling.	No
4	end_depth	Number w/decimal precision up to 7	Not required	End depth, in feet below ground surface of the drilling.	No
5	drill_date	Date Time	Not required	Date drilling began	MM/DD/YYYY format.
6	Diameter	Number w/decimal precision up to 7	Not required	Diameter of boring.	No
7	diameter_unit	Text (15)	If available	Unit corresponding to measured diameter. See Table A-18 in the Appendix for appropriate value.	Table A-18
8	drill_method	Text (50)	Not required	Method used to drill boring.	No
9	fluid	Text (50)	Not required	Description of fluid used during drilling.	No
10	viscosity	Text (50)	Not required	Viscosity of drilling fluid.	No
11	hammer_wt	Text (50)	Not required	Weight of hammer, in pounds, used for sampling.	No
12	hammer_fall	Text (50)	Not required	Distance of hammer fall during sampling in inches.	No
13	lift_mechanism	Text (50)	Not required	Type of mechanism used to lift hammer.	No
14	new_yn	Text (1)	Not required	This field is to indicate whether this is a new boring. Enter "Y" for yes or "N" for no.	Y = yes N= no
15	repair_yn	Text (1)	Not required	Is this drilling event to repair an existing boring? "Y" for yes or "N" for no.	Y = yes N= no
16	deepen_yn	Text (1)	Not required	Is this drilling event to deepen an existing boring? "Y" for yes or "N" for no.	Y = yes N= no
17	abandon_yn	Text (1)	Not required	Has the boring been abandoned? "Y" for yes or "N" for no.	Y = yes N= no
18	replace_yn	Text (1)	Not required	Is this boring event to replace an existing boring? "Y" for yes or "N" for no.	Y = yes N= no
19	public_yn	Text (1)	Not required	Is well being install for a public use? "Y" for yes or "N" for no.	Y = yes N= no
20	Purpose	Text (70)	Not required	Describe the purpose of the boring event.	No

3.6 Lithology EDD File

The lithology (LTH) EDD file contains all the lithology data for soil borings. For each lithologic unit, 16 fields are available for populating with data about the boring. Optional comments can be recorded in the

remark1 and remark2 fields to describe depth-specific observations within a lithologic unit. Each lithology EDD file must be named according to the following convention:

Date.EPAIDCode.EPAR5LTH_v3.txt (or .csv)

Table 3-6 Lithology (EPAR5LTH_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Valued In Appendix
1	sys_loc_code	Text(20)	Required	Soil boring or well installation location. Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the location EDD file (Table 3-4) submitted in the current or previous EDD.	No
2	start_depth	Number w/decimal precision up to 15	Required	The start depth, in feet below ground surface, of the lithologic unit.	No
3	material_type	Text(40)	If available	The type of material that composes the lithologic unit. See Table A-19 in the Appendix for appropriate values.	Table A-19
4	geo_unit_code_1	Text(20)	If available	The data provider's interpretation of the hydrogeologic unit present at this lithologic unit, e.g., aquifer 1, aquitard 1, aquifer 2, upper clay unit. See Figure A-2 in the Appendix for examples.	No
5	geo_unit_code_2	Text(20)	If available	Alternate geologic unit grouping. This can be a sub-classification of geologic_unit_code_1 or a layer used for groundwater flow/transport computer modeling that contains the lithologic unit. See Figure A-2 in the Appendix for examples.	No
6	remark_1	Text(255)	Not required	Comments (if any) on the lithologic unit.	No
7	remark_2	Text(255)	Not required	Additional comments on the lithologic unit.	No
8	Moisture	Text(1)	Not required	Was any moisture detected within the lithologic unit? "Y" for yes or "N" for no.	Y = yes N=No
9	Permeable	Text(20)	Not required	Description of the permeability of the lithologic unit such as "impervious," "semi," "pervious," or "very."	No
10	consolidated_yn	Text(1)	Not required	Was lithologic unit consolidated? "Y" for yes or "N" for no.	Y=yes N=no
11	Color	Text(20)	Not required	Color of the lithologic unit.	No
12	Observation	Text(255)	Not required	General field observations of the lithologic unit.	No
13	Consistency	Text(20)	Not required	Description of the consistency of the soil, such as "very soft," "soft," "firm," "hard" or "very hard."	No

Table 3-6 Lithology (EPAR5LTH_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Valued In Appendix
14	Sorting	Text(20)	Not required	Geologic description of the grain size distribution of the lithologic unit. Use "poor" for soil with a wide range of particle sizes or "well" for soil with a narrow range of particle sizes.	No
15	Grainsize	Text(20)	Not required	Description of grain size.	No
16	Odor	Text(20)	Not required	Description of odor from the soil.	No

3.7 Well EDD File

The well (EPAR5WEL_v3) EDD file contains general information relating to well installation. Each well file must be named according to the following convention:

Date.EPAIDCode.EPAR5WEL_v3.txt (or .csv)

Table 3-7 Well (EPAR5WEL_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Value In Appendix
1	sys_loc_code	Text(20)	Required	Well installation location Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the location EDD file (Table 3-4) submitted in the current or previous EDD.	No
2	Alternate_Well_id	Text(30)	Not required	Well identification number	No
3	well_description	Text(30)	Not required	Used for additional well description if necessary.	No
4	well_owner	Text(30)	Not required	Name of entity that owns the well.	No
5	well_purpose	Text (20)	Not required	Purpose of well.	No
6	well_status	Text (20)	Not required	Current status of well.	No
7	top_casing_elev	Number w/decimal precision up to 15	Not required	Elevation of the top of well casing. Elevation must be in feet.	No
8	datum_value	Number w/decimal precision up to 15	Required	Elevation of datum used to reference measurement of water level depths. (EPA normally uses top of well casing for datum.)	No
9	datum_unit	Text(15)	Required	Unit of measure for the well datum..	Table A-18
10	datum_desc	Text (70)	Required	Description of the datum, such as "top of well casing."	No

Table 3-7 Well (EPAR5WEL_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Value In Appendix
11	step_or_linear	Text (6)	Not required	Use only for re-surveys of well elevations. If a section of the well casing was removed or added use "step" as the value. If nothing was added or removed from the last survey, use "linear" as the value.	No
12	Datum_start_date	DateTime	Required	Date that datum was first used to take measurements.	MM/DD/YYYY format.
13	datum_collect_method_code	Text (2)	If available	Method used to determine the datum elevation. Use codes from Table A-6 in the Appendix	Table A-6
14	depth_of_well	Number w/decimal precision up to 15	Not required	Depth below ground surface of the well bottom.	No
15	depth_unit	Text (15)	If available	Unit of measurement for depth.	Table A-18
16	depth_measure_method	Text (20)	Not required	Method of measuring depth of well.	No
17	stickup_height	Text (8)	Not required	Height of casing above ground surface.	No
18	stickup_unit	Text (15)	If available	Unit of measure for the stickup height	Table A-18
19	sump_length	Text (20)	Not required	Length of sump.	No
20	sump_unit	Text (15)	If available	Unit of measure for the sump length. .	Table A-18
21	Installation_date	Date	Not required	Date of well installation	MM/DD/YYYY format.
22	construct_start_date	DateTime	Not required	Date well construction began	MM/DD/YYYY format.
23	construct_complete_date	DateTime	Not required	Date well construction was completed	MM/DD/YYYY format.
24	construct_contractor	Text (20)	If available	Name of contractor that installed well.	No
25	pump_type	Text (20)	Not required	Type of pump used at well such as centrifugal, propeller, jet, helical, rotary, etc.	No
26	pump_capacity	Text (6)	Not required	Capacity of pump.	No
27	pump_unit	Text (15)	If available	Unit of measure for the pump capacity and yield.	Table A-18
28	pump_yield	Text (6)	Not required	The yield of the pump.	No
29	pump_yield_method	Text (20)	Not required	Method used for pump yield.	No
30	weep_hole	Text (1)	Not required	Is there a weep hole? "Y" for yes or "N" for no.	Y=yes N=No
31	head_configuration	Text (50)	Not required	Description of the well-head.	No
32	access_port_yn	Text (1)	Not required	Is there an access port? "Y" for yes or "N" for no.	Y=yes N=No
33	casing_joint_type	Text (50)	Not required	Type of casing joint, such as "threaded," "flush," or "solvent-welded."	No
34	Perforator_used	Text (50)	Not required	Description of well perforation, such as "slotted," "drilled," or "wound."	No

Table 3-7 Well (EPAR5WEL_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Value In Appendix
35	intake_depth	Number w/decimal precision up to 15	Not required	Depth in feet below ground surface of the well intake.	Feet
36	Disinfected_yn	Text (1)	Not required	Was well disinfected? "Y" for yes or "N" for no.	Y=yes N=No
37	historical_ reference_elev	Number w/decimal precision up to 15	Not required	Leave null.	No
38	geologic_unit_code	Text (20)	If available	Geologic unit in which the well intake is installed.	No
39	Remark	Text (255)	Not required	Available for general remarks.	No

3.8 Well Construction EDD File

The well construction (WSG) file contains information relating to well construction and well segments. Information is required for all well segments within each well, including surface plug, protective casing, well casing, annular backfill, annular seal, screen, and filter pack. In order to obtain the depth of groundwater samples, it is particularly important that the depths of the top and bottom of the well screen be submitted for each well. Each well construction EDD file must be named according to the following convention:

Date.EPAIDCode.EPAR5WSG_v3.txt (or .csv)

Table 3-8 Well construction (EPAR5WSG_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Value In Appendix
1	sys_loc_code	Text(20)	Required	Well installation location. Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the location EDD file (Table 3-4) submitted in the current or previous EDD.	No
2	segment_type	Text(20)	Required	Type of segment within well (e.g., protective casing, well casing, screen, etc.).	Table A-20
3	material_type_ code	Text(20)	Required	Material description of well segment. Use values.	Table A-20
4	start_depth	Number w/decimal precision up to 15	Required	Depth, in feet below ground surface, of the top of the described segment.	No
5	end_depth	Number w/decimal precision up to 15	Required	Depth, in feet below ground surface, of the bottom of the described segment.	No
6	depth_unit	Text(15)	Required	The unit of depth measurements.	Table A-18

Table 3-8 Well construction (EPAR5WSG_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Value In Appendix
7	inner_diameter	Number w/decimal precision up to 15	Not required	The inside diameter of the described segment.	No
8	outer_diameter	Number w/decimal precision up to 15	Not required	The outside diameter of the described segment.	No
9	diameter_unit	Text(15)	If available.	The unit of diameter measurements	Table A-18
10	Thickness	Number w/decimal precision up to 15	Not required	Thickness of the described well segment.	No
11	thickness_unit	Text(15)	If available	The unit of measurement for thickness.	Table A-18
12	slot_type	Text(20)	Not required	Type of slots in screen segment such as bridge, shutter, and continuous.	No
13	slot_size	Number w/decimal precision up to 15	Not required	Width of slots.	No
14	slot_size_unit	Text(15)	If available	The unit of measurement for slot size..	Table A-18
15	perf_length	Number w/decimal precision up to 15	Not required	Length of perforated portion of screen in feet.	No
16	screen_type	Text(15)	Not required	Type of screen.	No
17	material_quantity	Text(20)	Not required	Quantity of material used in pounds. Applicable to annular seal/fill material.	No
18	material_density	Text(20)	Not required	Density of the annular seal material in lbs/ft^3.	No
19	Remark	Text(255)	Not required	Remarks regarding the segment.	No

3.9 Geology Samples EDD File

The Geology Samples (GSMP) EDD file contains geotechnical sample information. (Samples results related to chemical analyses should be reported using the Lab EDD.) Each Geology sample EDD file must be named according to the following convention:

Date.EPAIDCode.EPAR5GSMP_v3.txt (or .csv)

Table 3-9 Geology samples (EPAR5GSMP_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix

Table 3-9 Geology samples (EPAR5GSMP_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
1	sys_loc_code	Text(20)	Required	Sample collection location. Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the location EDD file (Table 3-4) submitted in the current or previous EDD.	No
2	geo_sample_ code	Text(40)	Required	Unique sample identifier. Considerable flexibility is given in the methods used to derive and assign unique sample identifiers, but uniqueness throughout the database is the only restriction enforced.	No
3	sample_name	Text(50)	Not required	Use to provide a name or description of sample. Does not have to be a unique throughout database.	No
4	sample_top	Number w/decimal precision up to 15	Required	Depth, in feet below ground surface, to top of sample.	No
5	sample_ bottom	Number w/decimal precision up to 15	Required	Depth, in feet below ground surface, to bottom of sample.	No
6	Sample_date	DateTime	Not required	Date sample was collected.	MM/DD/YYYY HH:MM:SS format
7	sample_ method	Text(30)	If available	Method used to obtain sample, e.g., split spoon or Shelby tube.	No
8	material_type	Text(40)	If available	Material type of geologic sample. .	Table A-8
9	sample_desc	Text(255)	Not required	General description of the sample or sampling activities.	No
10	geologic_ unit_code	Text(20)	If available	Code used to identify the geologic unit of the sample.	No
11	liquid_limit	Number w/decimal precision up to 7	Not required	Liquid limit (LL) of the sample.	No
12	plastic_limit	Number w/decimal precision up to 7	Not required	Plastic Limit (PL) of the sample.	No
13	shrinkage_ limit	Number w/decimal precision up to 7	Not required	Shrinkage limit of the sample.	No
14	flow_index	Number w/decimal precision up to 7	Not required	Flow index of the sample.	No

Table 3-9 Geology samples (EPAR5GSMP_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
15	plasticity_ index	Number w/decimal precision up to 7	Not required	Plasticity index of the sample.	No
16	Activity	Number w/decimal precision up to 7	Not required	Activity of the sample.	No
17	E	Number w/decimal precision up to 7	Not required	Void ratio of the sample.	No
18	e_max	Number w/decimal precision up to 7	Not required	Maximum void ratio of the sample.	No
19	e_min	Number w/decimal precision up to 7	Not required	Minimum void ratio of the sample.	No
20	N	Number w/decimal precision up to 7	Not required	Porosity of the sample.	No
21	specific_ gravity	Number w/decimal precision up to 7	Not required	Specific gravity of the sample.	No
22	W	Number w/decimal precision up to 7	Not required	Water content of the sample.	No
23	opt_w	Number w/decimal precision up to 7	Not required	Optimum water content.	No
24	S	Number w/decimal precision up to 7	Not required	Degree of saturation of the sample.	No
25	K	Number w/decimal precision up to 7	Not required	Hydraulic conductivity of the sample.	No
26	K_unit	Text(15)	If available.	Unit of measure for K.	Table A-18
27	unit_wt	Number w/decimal precision up to 7	Not required	Unit weight of the sample.	No

Table 3-9 Geology samples (EPAR5GSMP_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
28	sat_unit_wt	Number w/decimal precision up to 7	Not required	Saturated unit weight of the sample.	No
29	dry_unit_wt	Number w/decimal precision up to 7	Not required	Dry unit weight of the sample.	No
30	dry_unit_wt_ max	Number w/decimal precision up to 7	Not required	Maximum dry unit weight of the sample.	No
31	dry_unit_wt_ min	Number w/decimal precision up to 7	Not required	Minimum dry unit weight of the sample.	No
32	density_unit	Text(15)	If available	Unit of measure for the densities of the sample.	Table A-18
33	rel_density	Number w/decimal precision up to 7	Not required	Relative density of the sample.	No
34	rel_ compaction	Number w/decimal precision up to 7	Not required	Relative compaction of the sample.	No
35	Consistency	Text (20)	Not required	Description of the consistency of the soil sample such as very soft, soft, firm, hard or very hard.	No
36	organic_ carbon	Number w/decimal precision up to 7	Not required	Organic carbon content of sample.	No
37	organic_ carbon_unit	Text (15)	If available	Unit of measurement of organic content. Use values from Table A-18 of the Appendix.	No

3.10 Water Levels

The Water Level (EPAR5GWTR_v3) EDD file contains information on water levels measured during sampling activities. Groundwater levels and surface water elevations should be reported using this file; however, in most cases, the file will be used to report groundwater levels. When surface water samples are collected, however, this EDD file should be used to record water surface elevations at the time the samples were collected. Surface water elevations reported in this file will be used as the reference elevation for surface water sample depths (i.e., start_depth, field 11, and end_depth, field 12 in the lab

Sample (EPAR5SMP_v3) EDD file. See Table 4-1). When using the Water Level EDD file for reporting surface water data, only the first six fields (fields 1 through 6) and the "remark" field (field 17) should be populated. All fields in the Water Level EDD file, however, should be populated for groundwater elevation data (if data is available). An example of a Water Level file is provided in Figure 2-4, section 2.16. Each water level file must be named according to the following convention:

Date.EPAIDCode.EPAR5GWTR_v3.txt (or .csv)

Table 3-10 Water Level (EPAR5GWTR_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
1	sys_loc_code	Text(20)	Required	Water level measurement location. Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the location EDD file (Table 3-4) submitted in the current or previous EDD.	No
2	Measurement_ date	DateTime	Required	Date of water level measurement If exact date is not known, enter the best estimate for the date of sampling. If an estimated date is entered, note this and provide an explanation for how the estimate was made in both the EDD cover letter and in the comment field in this file (field 10).	MM/DD/YYYY HH:MM:SS format
3	historical_ reference_elev	Number w/decimal precision up to 15	Required	For groundwater samples, the value in this field should be the elevation, in feet above mean sea level, of the reference point used to take measurements of the water level depth. Typically the reference point for groundwater measurements is the top of the well casing. For surface water samples, the value in this field should be the elevation of the surface water in feet above mean sea level. If elevation is given in units other than feet above mean sea level, please indicate the unit used in the remarks field (field 17).	No

Table 3-10 Water Level (EPAR5GWTR_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
4	water_level_depth	Number w/decimal precision up to 7	Required	For groundwater, the value in this field should be the depth of ground water below the elevation defined in historical_reference_elev field (field 5). For surface water, the value in this field should be the default value of "0"	No
5	water_level_elev	Number w/decimal precision up to 7	Not required	Elevation of water level. Elevation must be in feet.	Feet
6	corrected_depth	Number w/decimal precision up to 7	Not required	Depth of water level after any necessary corrections, e.g., if free product was encountered.	No
7	corrected_elev	Number w/decimal precision up to 7	Not required	Corrected water level elevation that corresponds to the corrected depth. Elevation must be in feet.	feet
8	measured_depth_ of_well	Number w/decimal precision up to 7	Not required	The depth below ground surface to the bottom of the well.	No
9	depth_unit	Text (15)	If available	Unit used for depth measurements. See Table A-18 in the Appendix for appropriate values.	Table A-18
10	Technician	Text (30)	Not required	Name of technician measuring water level	No
11	dry_indicator_ yn	Text (1)	Not required	This field is used to indicate whether or not a well is dry -- "Y" for yes or "N" for no.	Y= yes N=No
12	measurement_ method	Text (20)	Not required	Method used to make water level measurements.	No
13	batch_number	Text (10)	Not required	Batch number of group of measurements.	No
14	dip_or_elevation	Text (10)	Not required	Use either "elevation" or "dip." Use "elevation" if water level measurement is above the datum (i.e., artesian well) or "dip" if water level is below datum.	Elevation Dip
15	Remark	Text (255)	Not required	Any necessary remarks related to groundwater or surface water information provided in this EDD file.	No

Table 3-10 Water Level (EPAR5GWTR_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
16	Lnapl_cas_rn	Text (15)	If applicable	Analyte code of the light non-aqueous phase liquid (lnapl) present in the well. Use appropriate valid value from Table A-15 in the EDD Specification Manual Valid Value Appendix.	Table A-15
17	Lnapl_depth	Text Number with precision of up to 7	Not required	Depth to the top surface of the lnapl in feet below the reference elevation.	No
18	Dnapl_cas_rn	Text (15)	If applicable	Analyte code of the dense non-aqueous phase liquid (dnalp) present in the well..	Table A-15
19	Dnaple_depth	Number with precision of up to 7	Not required	Depth to the top surface of the dnapl in feet below the reference elevation	No
20	Task_code	Text(10)	Required	Task_code reported as a date (YYYY/mm/dd)	No

3.11 Water Table EDD Files

The water table (EPAR5TBL_v3) EDD file stores data pertaining the water table and is used to record groundwater data during drilling activities. Each water table EDD file must be named according to the following convention:

Date.EPAIDCode.EPAR5TBL_v3.txt (or .csv)

Table 3-11 Water table (EPAR5TBL_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
1	sys_loc_code	Text (20)	Required	Soil boring or well installation location. Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the location EDD file (Table 3-4) submitted in the current or previous EDD.	No
2	Type	Text (20)	Required	Aquifer designation, such as unconfined1, confined1, or confined2.	No
3	Sequence	Text (20)	Required	Designation of when water level measurement was taken. Use “unstabilized” if measurement was taken before water stabilized and use “stabilized” if measurement taken after stabilization.	No

Table 3-11 Water table (EPAR5TBL_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
4	Depth	Number w/decimal precision up to 15	Required	Depth of water table, in feet, below reference point.	Feet
5	flowing_yn	Text (1)	Not Required	Is the water table flowing? "Y" for yes or "N" for no.	Y=yes N=No
6	measurement_ method	Text (50)	Not required	Method of measuring water table depth.	No
7	capped_pressu re	Number w/decimal precision up to 15	Not required	Hydrostatic pressure of confined aquifer.	No
8	capped_pressu re_ unit	Text (15)	If available	Unit of measure for capped pressure. Use values from Table A-18 in the Appendix.	Table A-18
9	reference_poin t	Text (50)	Not required	Description of reference point from which depth measurements were taken.	No
10	reference_elev ation	Number w/decimal precision up to 15	Required	Elevation of the reference point from which depth measurement were taken. Elevation must be in feet.	No
11	Temperature	Number w/decimal precision up to 15	Not required	Temperature of water in the water table.	No
12	temperature_u nit	Text (15)	If available	Unit of temperature. Use values from Table A-18 in the Appendix.	Table A-18

3.12 Geology Down Hole Point Data EDD File

The Geology downhole point data (DHP) EDD file stores data from down hole logging methods such as Cone Penetrometer Tests and geophysics. All down hole logging data should be submitted electronically. Report the parameter being measured in the "param" field, such as resistivity, and report the measured value at the depth of the measurement. Table 3.12a presents the DHP EDD file structure.

Each Geology downhole point data EDD file must be named according to the following convention:

Date.EPAIDCode.EPAR5DHP_v3.txt (or .csv)

Table 3-12 Geology Downhole Point (EPAR5DHP_v3) File Data Structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
1	sys_loc_code	Text(20)	Required	Sample collection location. Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the location EDD file (Table 3-4) submitted in the current or previous EDD.	No
2	Depth	Number w/decimal precision up to 15	Required	Depth of measurement below ground surface in feet.	No
3	Param	Text(20)	Required	The parameter being measured, such as tip stress, resistivity, or pore pressure.	No
4	param_value	Number w/decimal precision up to 15	Required	The measured value of the parameter.	No
5	Param_unit	Text(15)	Required	Measured unit of the parameter	No

Table 3.12a Example of downhole point data file

Sys_loc_code	Depth	Param	Param_Value
MW01	10.8	Tip Stress	612
MW01	11.2	Tip Stress	624
MW01	10.8	Sleeve Stress	6.1
MW01	11.2	Sleeve stress	5.8
MW02	9.5	Resistivity	510
MW02	10.1	Resistivity	521
MW02	11.0	Resistivity	889

3.13 Extraction – Injection Well (EPAR5EIW_v3) EDD File

The Extraction-Injection Well (EIW) EDD file should be submitted on a regular (e.g., quarterly) basis for all sites where extraction and/or injection wells are a part of the remedial action at the site. The purpose of the EIW EDD file is to provide EPA Region 5 with designed pumping rates as well as the actual pumping rates for each well during a particular reporting period. This information will be useful for determining if the remedial system is successfully capturing the contaminant plume. An example of an Extraction-Injection Well file is provided in Figure 2-4, section 2.16. Each Extraction-Injection Well EDD file must be named according to the following convention:

Date.EPAIDCode.EPAR5EIW_v3.txt (or .csv)

Table 3-13 Extraction-Injection Well (EPAR5EIW_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix

Table 3-13 Extraction-Injection Well (EPAR5EIW_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
1	sys_loc_code	Text(20)	Required	Well installation location. Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the location EDD file (Table 3-4) submitted in the current or previous EDD.	No
2	start_measure_date	DateTime	Required	Date that the pumping rate measurements began.	MM/DD/YYYY HH:MM:SS format
3	end_measure_date	DateTime	Required	Date that the pumping rate measurements concluded in MM/DD/YYYY HH:MM:SS format.	MM/DD/YYYY HH:MM:SS format
4	avg_pump_rate	Number w/decimal precision up to 15	Required	Average pumping rate. Recommended method is to use volume pumped divided by the reported date span. i.e., from the (start_measurement_date to end_measurement_date)	No
5	pump_rate_unit	Text(15)	Required	Unit of measure for the pumping rate. Use values from Table A-18 in the Appendix.	Table A-18
6	pct_operating_time	Text(3)	Not required	Percentage of the measurement time interval during which the well was operating. Use a value from 0 to 100 (do not include the percent symbol, "%").	No
7	operating_ mode	Text(14)	Required	Mode in which well was operating during the reported interval.	EXTRACTION, INJECTION, RECIRCULATION, PULSE, DEVEL, UNUSE.
8	design_rate	Text(14)	Required	Pumping rate as specified in the approved remedial design report for fully capturing site groundwater contamination.	No
9	design_rate_unit	Text(14)	Required	Unit of measure for the design pumping rate. Use values from Table A-18 in the Appendix.	Table A-18
10	rate_measurement_t ype	Text(14)	Not required	Type of measurements used for averaging.	TOTALIZER (totalizing flow meter), MANIFOLD (estimated from total manifold flow), ESTIMATE (estimate from prior values), AVERAGE (average of instantaneous measurements
11	suction	Text(14)	Not required	Vacuum in well (e.g., wellpoint vacuum) or well casing (e.g., vacuum well), reported in equivalent feet of water.	No

Table 3-13 Extraction-Injection Well (EPAR5EIW_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
12	remark	Text(255)	Not required	Remarks regarding the pumping rate measurements.	No

3.14 Soil Gas Data EDD File

The soil gas (EPAR5SoilGas_v3) data file contains soil gas survey data.

Each Soil Gas data EDD file must be named according to the following convention:

Date.EPAIDCode.EPAR5SoilGas_v3.txt (or .csv)

Table 3-14 Soil Gas (EPAR5SoilGas_v3) Survey file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
1	sys_loc_code	Text(20)	Required	Sample collection location	N/A
2	survey date	Datetime	Required	Sample survay date	N/A
3	Parameter_code	Text(20)	Required	Parameter measured by soil gas survey	N/A
4	Reading_depth	Text(8)	Not required	Depth of soil gas survey measurement	N/A
5	Reading unit	Text(15)	If available	Parameter measured by soil gas survey	N/A
6	Reading	Text(8)	Not required	Soil gas survey measurement	N/A
7	Depth_unit	Text(15)	If Available	Unit of measure of soil gas survey measurement	N/A
8	Sampling_method	Text(10)	Not required	Sampling method	N/A
9	Instrument_type	Text(15)	Not required	Instrument type	N/A
10	East	Text(14)	Not required	Easting coordinate of soil gas survey measurement	N/A
11	North	Text(14)	Not required	Northing coordinate of soil gas survey measurement	N/A
12	Secondary_east	Text(14)	Not required	Secondary easting coordinate of soil gas survey measurement	N/A
13	Secondary north	Text(14)	Not required	Secondary easting coordinate of soil gas survey measurement	N/A
14	Lithology_code	Text(10)	Not required	Lithology code	N/A
15	Area_desc	Text(70)	Not required	Discription of area	N/A
16	Equipment_code	Text(60)	Not required	Equipment_code	N/A
17	Borehole_drill_method	Text(10)	Not required	Drilling method	N/A
18	Technician	Text(50)	Not required	Technician	N/A
19	Remark	Text(255)	Not required	remark	N/A

4. FORMATS FOR LAB FILES

This section contains tables that define the file structures for the Chemistry EDD. The file structures include chemistry sample, sample parameter, test/result QC, and Batch file. Please notice that some columns are labeled as "Reserved for future use." These columns should simply be reported as null values and are only needed to comply with standard EQuIS® reporting formats. Columns marked "Required" must be reported for each row. If an EDD is submitted with one or more "Required" fields not filled in, EPA will not be able to load the EDD into its database, and the EDD will have to be returned to the data provider for correction(s). Columns marked "If available" should be filled in if at all possible.

4.1 Lab Sample EDD File

The Chemistry Sample EDD file contains data for samples collected at a site and location. The unique identifier for each sample is recorded in the sys_sample_code. For trip blank samples, please record the sys_sample_code as "TB" plus the date on which the sample was collected in MMDDYY format. For example a trip blank collected on April 5, 2000 would have a sys_sample_code of TB040500. A sys_sample_code of 'Trip Blank' is unacceptable because it cannot be distinguished from another trip blank labeled the same way. For samples that are not associated with a specific sampling location, such as trip blanks or field blanks, leave the sys_loc_code field (field 10) null. For surface water samples, record the sample depths, start_depth (field 11) and end_depth (field 12), as depth below the water surface elevation. The water surface elevation at the time of the sampling should be recorded in the Water Level file (see Section 4.3). An example of a Lab Sample file is provided in Figure 2-4, section 2.16.

Each Lab Sample file must be named according to the following convention:

Date.EPAIDCode.EPAR5SMP_v3.txt (or .csv)

Table 4-1 Lab sample (EPAR5SMP_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
1	Data_provider	Text (20)	Required	Date provider company code	A-23
2	sys_sample_code	Text(40)	Required	**Unique sample identifier**. Each sample at a facility must have a unique value, including spikes and duplicates. You have considerable flexibility in the methods used to derive and assign unique sample identifiers; however, uniqueness throughout the database is required.	No
3	sample_name	Text(50)	Not required	Additional sample identification information as necessary. Is not required to be unique (i.e., duplicates are OK). Can be the same value as in the sys_sample_code field.	No
4	sample_matrix_code	Text(3)	Required	Code that identifies the matrix being sampled, such as soil, groundwater, or sediment. For acceptable valid values, see Table A-1 in the Appendix.	Table A-1

Table 4-1 Lab sample (EPAR5SMP_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
5	sample_type_code	Text(3)	Required	Code that distinguishes between different types of samples, such as normal field samples versus laboratory method blank samples. For acceptable valid values see Table A-12 in the Appendix.	Table A-12
6	sample_source	Text(10)	Required	Identifies where the sample originated. Use either "Field" or "Lab". Use "Field" for all samples originating from the field and use "Lab" if sample originated from the laboratory.	Field Lab
7	parent_sample_code	Text(40)	Required for field duplicate samples	Unique identifier of the original sample from which the current sample was derived, i.e. the "parent" sample. Required for samples with a sample_type_code of "BD", "FD", "FR", "FS", "LR", "MS", "MSD" or "SD."	No
8	sample_delivery_ group	Text(10)	Not required	EPA and most EPA Reigon 5 data providers are accustomed to using the Contract Laboratory Program (CLP) document definition of the sample delivery group (SDG). However, the CLP definition of an SDG relates to a lab payment group which is not what is being asked for in this field. For the purposes of this field in this EDD, the value entered should correspond more to the "sampling event/ matrix" with which the sample is associated. For example, the SDG for ground water samples should be different from that for surface water samples. This will prevent flags associated with surface water matrix effects from being propagated to ground water results	No
9	sample_date	DateTime	Required	Date sample was collected in MM/DD/YYYY HH:MM:SS format.	MM/DD/YYYY HH:MM:SS format.
10	sys_loc_code	Text(20)	Required*	Sample collection location. Must be a valid code for the facility and must match one of the reported values in the sys_loc_code field of the location EDD file (Table 3-4) submitted in the current or previous EDD. * Field should be null if sample is not associated with a specific location, such as QC samples (e.g., field blank, trip blank) and this code cannot be the same as sys_sample_code	No
11	start_depth	Number w/decimal precision up to 15	Not required	Beginning depth (top) of sample in feet below ground surface for Soil or Groundwater sample. Only use for groundwater samples if discrete samples are taken at different depth elevations from a single well, i.e. multiple well packer samples.	No

Table 4-1 Lab sample (EPAR5SMP_v3) file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
12	end_depth	Number w/decimal precision up to 15	Not required	Ending depth (bottom) of sample in feet below ground surface for Soil or Groundwater sample. Only use for groundwater samples if discrete samples are taken at different depth elevations from a single well, i.e. multiple well packer samples.	No
13	depth_unit	Text(15)	If available	Unit of measurement for the sample beginning and end depths. For valid values, see Table A-18 in the Appendix.	Table A-18
14	chain_of_custody	Text(15)	Not required	Chain of custody identifier. A single sample may be assigned to only one chain of custody.	No
15	sent_to_lab_date	DateTime	Not required	Date sample was sent to lab in MM/DD/YYYY format.	No
16	sample_receipt_date	DateTime	Not required	Date that sample was received at laboratory in MM/DD/YYYY format.	No
17	sampler	Text(30)	Not required	Name or initials of sampler.	No
18	sampling_company_code	Text(10)	Required	Name or initials of consulting company performing sampling. (This field does not have a controlled vocabulary, i.e., there is no table of valid values for this field.)	No
19	sampling_reason	Text(30)	Not required	Reason for Sampling	No
20	sampling_technique	Text(40)	If available	Sampling technique.	No
21	task_code	Text(10)	Required	Code used to associate individual samples to a specific sampling event. The format for this field is XX-P#-, where XX is the type of task required (PR = Pre Remedial, RI = Remedial Investigation, FS = Feasibility Study, PD = Pre-Design, RD = Remedial Design, RA = Remedial Construction, PC = Post Construction, RM = Removal Action, BD = Before Dredge, AD = After Dredge, BR = Brown Fields, SP = Special Project); P# is the phase; For example, if sampling was performed for a Phase 1 Post Construction site, the task_code would be PC-P1	No
22	collection_quarter	Text(5)	Not required	Report as null.	No
23	composite_yn	Text(1)	Required	Is sample a composite sample? Enter "Y" for yes or "N" for no.	Y= Yes N=No
24	composite_desc	Text(255)	Not required	Description of composite sample. If sample is not a composite, leave this field null.	No
25	sample_class	Text(10)	Not required	Report as null.	No
26	custom_field_1	Text (20)	Not required	Report as null.	No
27	custom_field_2	Text(50)	Not required	Report as null.	No
28	custom_field_3	Text(50)	Not required	Report as null.	No
29	comment	Text(255)	Not required	Any comments regarding the sample.	No

4.2 Lab Test Results EDD Files

The Lab Test Results EDD files contain data relating data concerning analytical tests and results performed on samples.

Each Lab Test Results EDD file must be named according to the following convention:

Date.EPAIDCode.EPAR5TRS_v3.txt (or .csv)

Table 4-2 Lab Test Results (EPAR5TRS_v3) EDD file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
1	sys_sample_code	Text(40)	Required	Sample identifier of the sample that was tested and analyzed. Must match one of the reported values in the sys_sample_code field of the EPAR5SMP_v3 file submitted in the current or previous EDD.	No
2	lab_anl_method_ name	Text(20)	Required	Laboratory analytical method name or description. For acceptable valid values, see Table A-16 in the Appendix. Default to “Unknown” if data is unavailable.	Table A-16
3	analysis_date	DateTim e	Required	Date of sample analysis in MM/DD/YYYY HH:MM:SS format. May refer to either beginning or end of the analysis. For measurements taken in the field (e.g., pH, dissolved oxygen), use the same date as sample date	No
4	total_or_dissolved	Text(1)	Required	Must be either "D" for dissolved or filtered [metal] concentrations, and “T” for every other case.	A-24
5	column_number	Text(2)	Not required	Report as null.	No
6	test_type	Text(10)	Required	Type of test	A-25
7	lab_matrix_code	Text(3)	If available	Code that identifies the matrix, such as soil, groundwater, and sediment, being sampled... The matrix of the sample as analyzed may be different from the matrix of the sample as retrieved (e.g., leachates), so this field is available at both the sample and test level.	Table A-1
8	analysis_location	Text(2)	Required	Must be either "FI" for field instrument or probe (i.e, “in the field” measurements such as pH, temperature, conductivity, and dissolved oxygen), "FL" for mobile field laboratory analysis, or "LB" for an analysis done at a fixed-based laboratory.	FI = Field Instrument FL = Mobile Field lab LB = Fixed based lab

Table 4-2 Lab Test Results (EPAR5TRS_v3) EDD file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
9	Basis	Text(10)	Required	Must be "Wet" for wet-weight basis reporting, "Dry" for dry-weight basis reporting, or "NA" for tests for which this distinction is not applicable. EPA prefers that results are reported on the basis of dry weight where applicable.	Wet= wet-weight Dry= dry weight N/A = not applicable
10	container_id	Text(30)	Not required	Report as null.	No
11	dilution_factor	Number w/decimal precision up to 7	Not required	Effective test dilution factor.	No
12	prep_method	Text(20)	If available	Laboratory sample preparation method name or description. Must use valid value from Table A-14 in the Appendix.	Table A-14
13	prep_date	DateTime	Not required	Beginning date of sample preparation	MM/DD/YYYY HH:MM:SS format
14	leachate_method	Text(15)	Not required	Laboratory leachate generation method name or description. The method name should be sufficient to reflect the operation methodology used by the laboratory (see analysis method discussion).	No
15	leachate_date	DateTime	Not required	Beginning date of leachate preparation	MM/DD/YYYY HH:MM:SS format
16	lab_name_code	Text(20)	If available	Unique identifier of the laboratory as defined by the EPA. Controlled vocabulary.. [Note: If the lab you are using does not appear in Table A-17, you may propose a valid value for the lab for addition to the EPA Region 5 list. Please provide information about the lab in the cover letter accompanying your EDD submittal.]	Table A-17
17	qc_level	Text(10)	Not required	May be either "screen" for screening data or "quant" For quantitative data. Default value is “quant.”	Screen = screening Quant= quantitative
18	lab_sample_id	Text(20)	Not required	Laboratory LIMS sample identifier. If necessary, a field sample may have more than one LIMS lab_sample_id (maximum one per each test event).	No

Table 4-2 Lab Test Results (EPAR5TRS_v3) EDD file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
19	percent_moisture	Text(5)	Not required	Percent moisture of the sample portion used in this test; this value may vary from test to test for any sample. Numeric format is "NN.MM," i.e., 70.1% could be reported as "70.1" but not as "70.1%."	No
20	subsample_ amount	Text(14)	Not required	Amount of sample used for test.	No
21	subsample_ amount_unit	Text(15)	If available	Unit of measurement for subsample amount. Must use valid value from Table A-18 in the Appendix.	Table A-18
22	analyst_name	Text(30)	Not required	Report as null.	No
23	instrument_id	Text(50)	Not required	Report as null.	No
24	comment	Text(255)	Not required	Comments about the test as necessary.	No
25	preservative	Text(20)	If available	Sample preservative used.	No
26	final_volume	Numeric	Not required	The final volume of the sample after sample preparation. Include all dilution factors.	No
27	final_volume_unit	Text(15)	If available	The unit of measure that corresponds to the final_amount.	No
28	cas_rn	Text(15)	Required	Analyte code..	Table A-15
29	chemical_name	Text(75)	Required	Chemical name..	Table A-15
30	result_value	Numeric	Not required	Analytical result reported at an appropriate number of significant digits.	No
31	result_error_delta	Text(20)	Not required	Error range applicable to the result value; typically used only for radiochemistry results.	No
32	result_type_code	Text(3)	Required	Must be either "TRG" for a target or regular result, "TIC" for a tentatively identified compound. Use “TRG” for measurements taken from the field (e.g., pH, dissolved oxygen)	TRG = Target or regular TIC = Tentative identified
33	reportable_result	Text(10)	Required	Must be either "Yes" for results that are considered to be reportable, or "No" for other results. This field has many purposes. For example, it can be used to distinguish between multiple results where a sample is retested after dilution. It can also be used to indicate which of the first or second column result should be considered primary. The proper value of this field in both of these two examples should be provided by the laboratory (only one result should be flagged as reportable).	Yes No

Table 4-2 Lab Test Results (EPAR5TRS_v3) EDD file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
34	detect_flag	Text(2)	Required	Maybe either "Y" for detected analytes or "N" for non-detects. “Y” should be used for detected target compounds and TICs only (i.e. result_type_code is “TRG” or “TIC”). Also use "Y" for estimated (above detection limit but below the quantitation limit) or ">" and "<" for tests such as flash point. Note that "<" must not be used to indicate non-detects.	Y = detected N = non-detects
35	lab_qualifiers	Text(10)	Not required	Qualifier flags assigned by the laboratory.	No
36	validator_qualifiers	Text(10)	Not required	Qualifier flags assigned by the person who validates the laboratory data. The interpret qualifier is required if lap_qualifer or validator _qualifier are populated	No
37	Interpreted_qualifier	Text(20)	If available/ Required	Interpreted qualifier flag assigned by the data provider. The interpret qualifier is required if lap_qualifer or validator _qualifier are populated	Table A-10
38	Validated_yn	Text (1)	Required	Indicates if the result has been validated	
39	organic_yn	Text(1)	Required	Must be either "Y" for organic constituents or "N" for inorganic constituents. Use “Y” for measurements taken from the field (e.g., pH, dissolved oxygen)	Y= organic N= inorganic
40	method_detection_ limit	Text(20)	Not required	Report as null. The minimum concentration of an analyte that can be measured and reported with 99% confidence that the analyte concentration is greater than zero, as determined for a specific procedure.	No
41	reporting_detection_ limit	Numeric	Not required	Must be reported if sample result is “non-detect.” The minimum concentration of an analyte that can be measured and reported with 99% confidence that the analyte concentration is greater than zero, as determined for a specific procedure, which is equal to or greater than the MDL.	No
42	quantitation_limit	Text(20)	Not required	Concentration level above which results can be quantified with confidence. The value must reflect conditions such as dilution factors and moisture content, and must be sample-specific.	No
43	result_unit	Text(15)	If available	Units of measurement for the result. Must use valid values from Table A-18 in the Appendix.	Table A-18

Table 4-2 Lab Test Results (EPAR5TRS_v3) EDD file data structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
44	detection_limit_unit	Text(15)	If available	Units of measurement for the detection limit(s). Must use valid value from Table A-18 in the Appendix.	Table A-18
45	tic_retention_time	Text(8)	Not required	Report as null.	No
46	result_comment	Text(255)	Not required	Result specific comments.	No

4.3 Lab Test/Result with QC Data EDD File

The Lab test/results with QC (TRSQC) EDD file contains data from analytical tests performed on samples along with quality control data.

Each Chemistry test/results with QC EDD file must be named according to the following convention:

Date.EPAIDCode.EPAR5TRSQC_v3.txt (or .csv)

Table 4-3 Chemistry test/results with QC (EPAR5TRSQC_v3) data file structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
1	sys_sample_code	Text(40)	Required	Sample identifier of the sample that was tested and analyzed. Must match one of the reported values in the sys_sample_code field of the EPAR5SMP_v3 file submitted in the current or previous EDD.	
2	lab_anl_method_name	Text(20)	Required	Laboratory analytical method name or description. For acceptable valid values. Default to "Unknown" if data is unavailable.	Table A-16
3	analysis_date	DateTime	Required	Date of sample analysis in MM/DD/YYYY HH:MM:SS format. May refer to either beginning or end of the analysis. For measurements taken in the field (e.g., pH, dissolved oxygen), use the same date as sample date	
4	Total_or_dissolved	Text(1)	Required	Enumeration list contains the values	A-24
5	column_number	Text(2)	Not required	Column number, if null, "NA" will be placed in this field	No
6	test_type	Text(10)	Required	Type of test.	A-25
7	lab_matrix_code	Text(3)	If available	Code that identifies the matrix, such as soil, groundwater, and sediment. The matrix of the sample when it is analyzed may be different from the matrix of the sample when it is collected (e.g. leachates), so this field is available at both the sample and test level.	Table A-1
8	analysis_location	Text(2)	Required	Must be either "FI" for field instrument or probe (i.e, "in the field" measurements such as pH, temperature, conductivity, and dissolved oxygen), "FL" for mobile field laboratory analysis, or "LB" for an analysis done at a fixed-based laboratory.	FI = Field Instrument FL = Mobile Field lab LB = Fixed based lab
9	Basis	Text(10)	Required	Must be either "Wet" for wet-weight basis reporting, "Dry" for dry-weight basis reporting, or "NA" for tests for which this distinction is not applicable. EPA prefers that results are reported on the basis of dry weight where applicable.	Wet= wet-weight Dry= dry weight N/A = not applicable
10	container_id	Text(30)	Not required	Report as null.	No

Table 4-3 Chemistry test/results with QC (EPAR5TRSQC_v3) data file structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
11	dilution_factor	Numeric	Not required	Effective test dilution factor.	No
12	prep_method	Text(20)	If available	Laboratory sample preparation method name or description. Must use valid value from Table A-14 in the Appendix.	Table A-14
13	prep_date	DateTime	Not required	Beginning date of sample preparation.	MM/DD/YYYY HH:MM:SS format
14	leachate_method	Text(15)	Not required	Laboratory leachate generation method name or description. The method name should be sufficient to reflect the operation methodology used by the laboratory (see analysis method discussion).	No
15	leachate_date	DateTime	Not required	Beginning date of leachate preparation	MM/DD/YYYY HH:MM:SS format
16	lab_name_code	Text(20)	If available	Unique identifier of the laboratory as defined by the EPA. Controlled vocabulary; see the lab valid value table in appendix.	Table A-17
17	qc_level	Text(10)	Not required	May be either "screen" for screening data or "quant" For quantitative data. Default value is “quant.”	Screen = screening Quant = quantitative
18	lab_sample_id	Text(20)	Not required	Laboratory LIMS sample identifier. If necessary, a field sample may have more than one LIMS lab_sample_id (maximum one per each test event).	No
19	percent_moisture	Text(5)	Not required	Percent moisture of the sample portion used in this test; this value may vary from test to test for any sample. Numeric format is "NN.MM," i.e., 70.1% could be reported as "70.1" but not as "70.1%."	No
20	subsample_amount	Text(14)	Not required	Amount of sample used for test.	No
21	subsample_amount_unit	Text(15)	If available	Unit of measurement for subsample amount. Must use valid value from Table A-18 in the Appendix.	Table A-18
22	analyst_name	Text(30)	Not required	Report as null.	No
23	instrument_id	Text(50)	Not required	Report as null.	No
24	Comment	Text(255)	Not required	Comments about the test, if necessary.	No
25	Preservative	Text(20)	If available	Sample preservative used.	Table A-27

Table 4-3 Chemistry test/results with QC (EPAR5TRSQC_v3) data file structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
26	final_volume	Numeric	Not required	The final volume of the sample after sample preparation. Include all dilution factors.	No
27	final_volume_unit	Text(15)	If available	The unit of measure that corresponds to the final_amount.	Table A-18
28	cas_rn	Text(15)	Required	Analyte code..	Table A-15
29	chemical_name	Text(75)	Required	Chemical name.	Table A-15
30	Result_value	Numeric	Not required	Analytical result reported at an appropriate number of significant digits. May be blank for non-detect results.	No
31	Result_error_delta	Text(20)	If available	Error range applicable to the result value; typically used only for radiochemistry results.	No
32	Result_type_code	Text(10)	Required	Must be either "TRG" for a target or regular result, "TIC" for a tentatively identified compound, "SUR" for surrogates, "IS" for internal standards, or "SC" for spiked compounds. Use "TRG" for measurements taken from the field (e.g., pH, dissolved oxygen). 'CAL' for calculated pore water concentrations.	Table A-11
33	reportable_result	Text(10)	Required	Must be either "Yes" for results that are considered to be reportable, or "No" for other results. This field has many purposes. For example, it can be used to distinguish between multiple results where a sample is retested after dilution. It can also be used to indicate which of the first or second column result should be considered primary. The proper value of this field in both of these two examples should be provided by the laboratory.	Yes No Y N
34	detect_flag	Text(2)	Required	Maybe either "Y" for detected analytes or "N" for non-detects. "Y" should be used for detected target compounds and TICs only (i.e. result_type_code is "TRG" or "TIC"). Also use "Y" for estimated (above detection limit but below the quantitation limit) or ">" and "<" for tests such as flash point. Note that "<" must not be used to indicate non-detects.	Y= detected N = non-detects
35	Lab_qualifiers	Text(10)	Not required	Qualifier flags assigned by the laboratory.	No

Table 4-3 Chemistry test/results with QC (EPAR5TRSQC_v3) data file structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
36	validator_qualifiers	Text(10)	Not required	Qualifier flags assigned by the person who validates the laboratory data.	No
37	Interpreted_qualifiers	Text(10)	If available	Interpreted qualifier flag assigned by the validator. When the validated_yn = N (no, meaning the data is not validated by validator), the interpret qualifier is required if lab_qualifier or validator _qualifier are populated. If the validated_yn = Y (yes, meaning the data has been validated and the validator agreed witht eh lab qualifier), then they should populate the validator_qualifier and the interpreted_qualifier. If the validated_yn = Y (yes, but the validator does not agree with the lab_qualifier), then the validator will leave the qualifier NULL and the final qualifier is also NULL. When populating th e interpreted_qualifier, please use the qualifier in the Valid Value in A-10 with the description that can closely match with the lab qualifier.	A-10
38	Validated_yn	Text (1)	Required	Must be either "Y" for validate or "N" for not validate.	Indicated if the result has been validated
39	Organic_yn	Text(1)	Required	Must be either 'Y' for organic constituents or 'N' for inorganic constituents.	No
40	method_detection_limit	Text(20)	If available	Report as null. The minimum concentration of an analyte that can be measured and reported with 99% confidence that the analyte concentration is greater than zero, as determined for a specific procedure.	No
41	reporting_detection_limit	Numeric	Not required	Must be reported if sample result is “non-detect.” The minimum concentration of an analyte that can be measured and reported with 99% confidence that the analyte concentration is greater than zero, as determined for a specific procedure, which is equal to or greater than the MDL.	No

Table 4-3 Chemistry test/results with QC (EPAR5TRSQC_v3) data file structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
42	quantitation_limit	Text(20)	Not required	Quantitation limits refer to a minimum concentration of an analyte that can be measured within specified limits of precision and accuracy. They are generally 5-10 times the detection limit. Thus, when quantitation limits are used as reporting limits, the laboratory is saying that the analyte is not present in a sufficient amount to be reliably quantified (i.e., at a concentration above the quantitation limit). It may be present and even positively identified or "seen" at a lower concentration.	No
43	Result_unit	Text(15)	If available	Units of measurement for the result. Must use valid values from Table A-18 in the Appendix.	Table A-18
44	detection_limit_unit	Text(15)	If available	Units of measurement for the detection limit(s). Must use valid value from Table A-18 in the Appendix.	Table A-18
45	tic_retention_time	Text(8)	Not required	Report the value and time when the result type is TIC.	No
46	Result_comment	Text (255)	Not required	Result specific comments	No
47	qc_original_conc	Numeric	Not required	The concentration of the analyte in the original (unspiked) sample. Might be required for spikes and spike duplicates (depending on user needs). Not necessary for surrogate compounds or LCS samples (where the original concentration is assumed to be zero).	No
48	qc_spike_added	Numeric	Not required	The concentration of the analyte added to the original sample. Might be required for spikes, spike duplicates, surrogate compounds, LCS and any spiked sample (depending on user needs).	No
49	qc_spike_measured	Numeric	Not required	The measured concentration of the analyte. Use zero for spiked compounds that were not detected in the sample. Might be required for spikes, spike duplicates, surrogate compounds, LCS and any spiked sample (depending on user needs).	No

Table 4-3 Chemistry test/results with QC (EPAR5TRSQC_v3) data file structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
50	qc_spike_recovery	Numeric	Not required	The percent recovery calculated as specified by the laboratory QC program. Always required for spikes, spike duplicates, surrogate compounds, LCS and any spiked sample. Report as percentage multiplied by 100 (e.g., report "120%" as "120").	No
51	qc_dup_original_conc	Numeric	Not required	The concentration of the analyte in the original (unspiked) sample. Might be required for spike or LCS duplicates only (depending on user needs). Not necessary for surrogate compounds or LCS samples (where the original concentration is assumed to be zero).	No
52	qc_dup_spike_added	Numeric	Not required	The concentration of the analyte added to the original sample. Might be required for spike or LCS duplicates, surrogate compounds, and any spiked and duplicated sample (depending on user needs). Use zero for spiked compounds that were not detected in the sample. Required for spikes, spike duplicates, surrogate compounds, LCS and any spiked sample. Also complete the qc-spike-added field.	No
53	qc_dup_spike_measured	Numeric	Not required	The measured concentration of the analyte in the duplicate. Use zero for spiked compounds that were not detected in the sample. Might be required for spike and LCS duplicates, surrogate compounds, and any other spiked and duplicated sample (depending on user needs). Also complete the qc_spike_measured field.	No
54	qc_dup_spike_recovery	Numeric	Not required	The duplicate percent recovery calculated as specified by the laboratory QC program. Always required for spike or LCS duplicates, surrogate compounds, and any other spiked and duplicated sample. Also complete the qc_spike_recovery field. Report as percentage multiplied by 100 (e.g., report "120%" as "120").	No
55	qc_rpd	Text(8)	Not required	The relative percent difference calculated as specified by the laboratory QC program. Required for duplicate samples as appropriate. Report as percentage multiplied by 100 (e.g., report "30%" as "30").	No

Table 4-3 Chemistry test/results with QC (EPAR5TRSQC_v3) data file structure

Pos#	Column Name	Data Type	Required	Description	Valid Values In Appendix
56	qc_spike_lcl	Text(8)	Not required	Lower control limit for spike recovery. Required for spikes, spike duplicates, surrogate compounds, LCS and any spiked sample. Report as percentage multiplied by 100 (e.g., report "60%" as "60").	No
57	qc_spike_ucl	Text(8)	Not required	Upper control limit for spike recovery. Required for spikes, spike duplicates, surrogate compounds, LCS and any spiked sample. Report as percentage multiplied by 100 (e.g., report "120%" as "120").	No
58	qc_rpd_cl	Text(8)	Not required	Relative percent difference control limit. Required for any duplicated sample. Report as percentage multiplied by 100 (e.g., report "25%" as "25").	No
59	qc_spike_status	Text(10)	Not required	Used to indicate whether the spike recovery was within control limits. Use the "*" character to indicate failure, otherwise leave blank. Required for spikes, spike duplicates, surrogate compounds, LCS and any spiked sample.	No
60	qc_dup_spike_status	Text(10)	Not required	Used to indicate whether the duplicate spike recovery was within control limits. Use the "*" character to indicate failure, otherwise leave blank. Required for any spiked and duplicated sample.	No
61	qc_rpd_status	Text(10)	Not required	Used to indicate whether the relative percent difference was within control limits. Use the "*" character to indicate failure, otherwise leave blank. Required for any duplicated sample.	No

4.4 Lab Batch Data (EPAR5BAT_v3) EDD File

The Lab Batch (EPAR5BAT_v3) EDD file contains data that relate the individual samples to the laboratory batch identifier. For the most part, as with the TestResultQC EDD file, the BATCH EDD file will only need to be submitted by EPA contractors that are submitting quality data elements with their reports. The purpose of this EDD file is so laboratory quality control samples can be associated with the correct field samples with which they were processed and analyzed. This EDD file has been structured to allow samples to have different batch IDs for various phases of analysis (e.g., preparation phase, analysis phase). The majority of samples will only have one batch ID assigned by the laboratory. It is important that the values in the sys_sample_code, lab_anl_method_name, analysis_date, analysis_time, total_or_dissolved and test_type fields match those found in the TestResultQC EDD files. Each Chemistry batch file must be named according to the following convention:

Date.EPAIDCode.EPAR5BAT_v3.txt (or .csv)

Table 4-4 Lab batch file (EPAR5BAT_v3) data structure

Pos#	Column Name	Data type	Required	Description	Valid Values In Appendix
1	sys_sample_code	Text(40)	Required	Sample identifier of the sample that was tested and analyzed. Must match one of the reported values in the sys_sample_code field of the EPAR5SMP_v3 file (Table 4-1) submitted in the current or previous EDD.	No
2	lab_anl_method_ name	Text(20)	Required	Laboratory analytical method name or description. For acceptable valid values, see Table A-16 in the Appendix. Default to "Unknown" if data is unavailable.	Table A-16
3	analysis_date	Datetime	Required	Date of sample analysis. May refer to either beginning or end of the analysis.	MM/DD/YYYY HH:MM:SS format.
4	total_or_dissolved	Text(1)	Required	Enumeration list contains the values	A-24
5	column_number	Text(2)	Not required	Report as null.	No
6	test_type	Text(10)	Required	Type of test.	A-25
7	test_batch_type	Text(10)	Required	Lab batch type. This is a required field for all batches.	A-26
8	test_batch_id	Text(20)	Required	Unique identifier for all lab batches.	No

5. TECHNICAL SUPPORT

EPA Region 5 provides technical support for users of this Comprehensive EDD Specification Manual. For questions concerning data, data formats, and EDD submittal procedures, please contact EDD EQUIS Coordinator. For more general questions relating to the site, please contact the EPA RPM assigned to the site.