

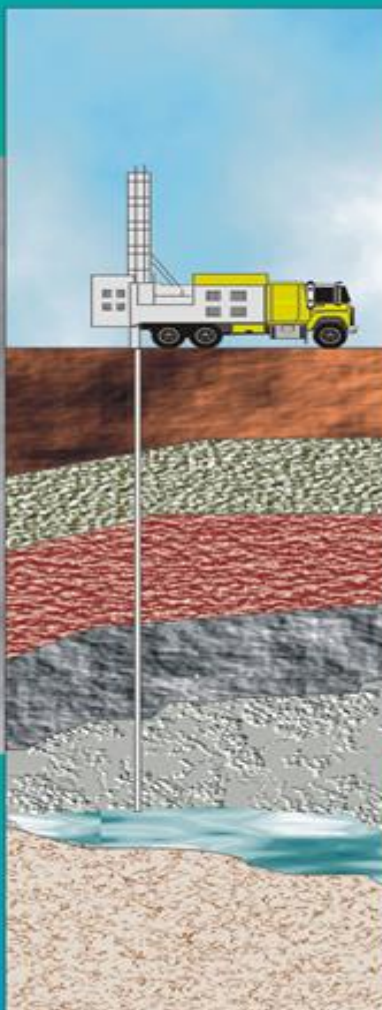


Electronic data Deliverable (EDD) Comprehensive Specification Manual 4.0

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U. S. Environmental Protection Agency,
Region 2 Superfund
290 Broadway
New York, NY 10007

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This documentation was reviewed and updated by Diann Cox-Tramel and Robert M. Alvey, Region 2 and updated on June 2015 to meet the standards and requirements of EPA Region 2.

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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 2. 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 2 Superfund Division.

This EDD Comprehensive Specification manual describes the requirements for reporting all **current** and **future** environmental data to EPA Region 2. 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 2 “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 2 EDD is comprised of five groups: Initial, Field, Vapor Intrusion, Chemistry, and Basic. The Initial EDD files refer to 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. The Initial EDD files are only resubmitted if information, such as the point of contact, changes. The three initial files are:

Initial – (only submit once unless changes are needed)

- Base Map (electronic map of the site property boundaries in *.dxf format)
- Data Provider (point of contact for EDD and file providing the information)
- Site (general information about the site)
- Location (information regarding the sampling locations)

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 chemistry data.

Field

The Field EDD files contain data regarding drilling activities, lithology, geologic sampling, well construction, down hole point data, and water table levels. The seven Geology EDD files are the:

- Drilling Activity (information about drilling activities)
- Lithology (lithology information)
- Well (monitoring well information)
- Well Construction (well construction details)
- Geology Sample (geology sample data)
- Water Table (water table data collected during drilling)
- Down Hole Point (down-hole logging data)
- Soil Gas (soil gas survey data)
- Water Level (information regarding groundwater level measurements)
- Extraction/Injection Well (information about extraction and/or injection wells)
- Field Results (information of field results)

Vapor Intrusion

- Building Address (information of the building address)
- Building
- Task Parameters
- Samples
- Test Result QC
- Batches

Chemistry

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

- Sample (information about sample collection)
- Sample Parameter (information about the parameter data associated with a sample sent to a lab)
- Test Result QC (information about the analytical test performed on samples with quality control data elements)
- Batch (test batch information)

Basic Submittals

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

- Location (information about sampling locations from historical data)
- Water Level (information regarding groundwater level measurements)
- Chemistry Sample (information about sample collection)
- Geology (information about geology data)

Of the files listed above, the Chemistry 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 initial, chemistry and field 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 Initial EDD files have been submitted for a site, as well as to prevent redundancy when getting ready to submit chemistry or field EDDs. For example, one of the Initial EDDs called the SITE 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 Initial 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 2 is to check it using the Electronic Data Processor (EDP) software application that is currently provided on the EPA Region 2 website (located at <http://www.epa.gov/region02/superfund/medd.htm>). 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 Initial , Field and Chemistry EDD files

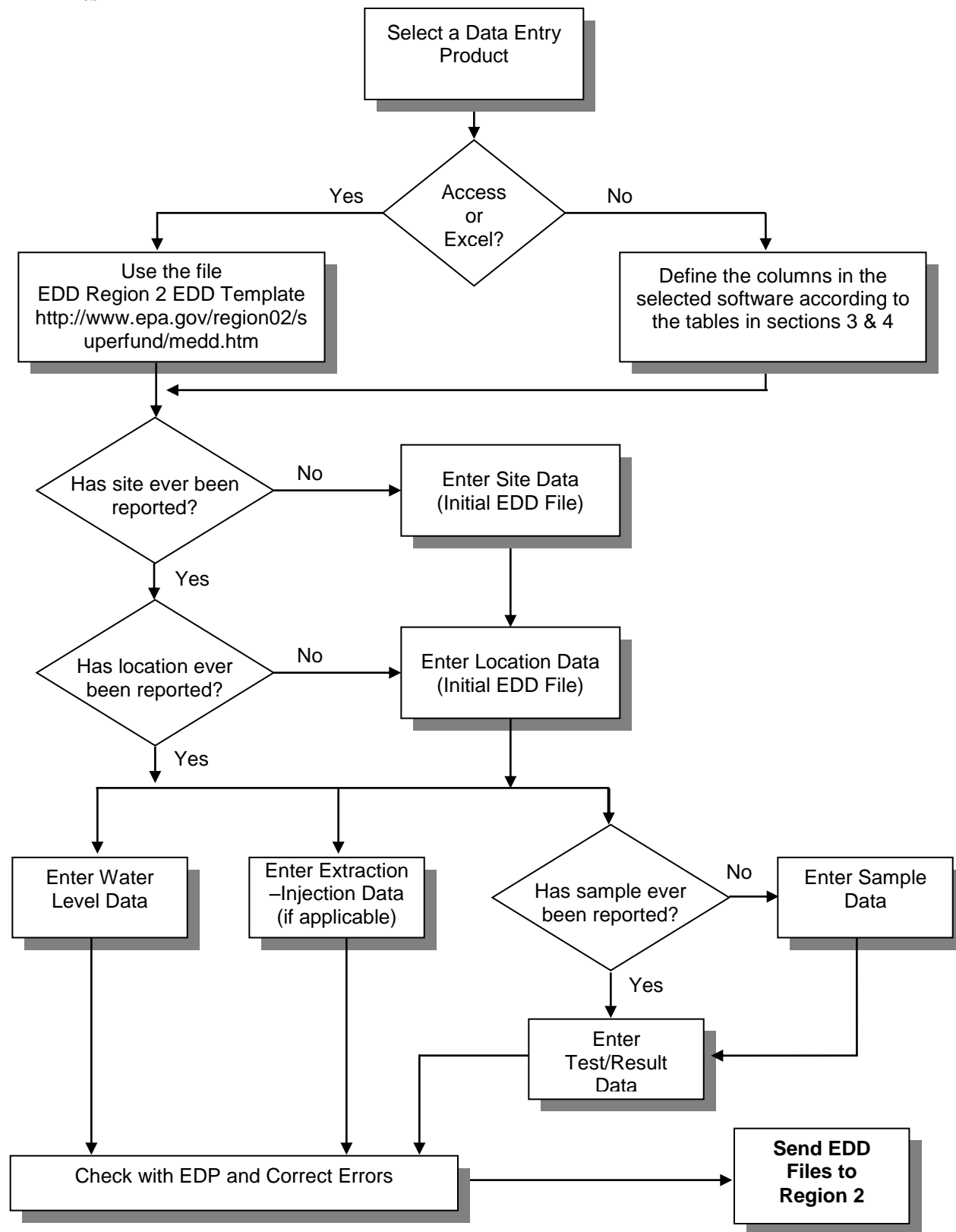
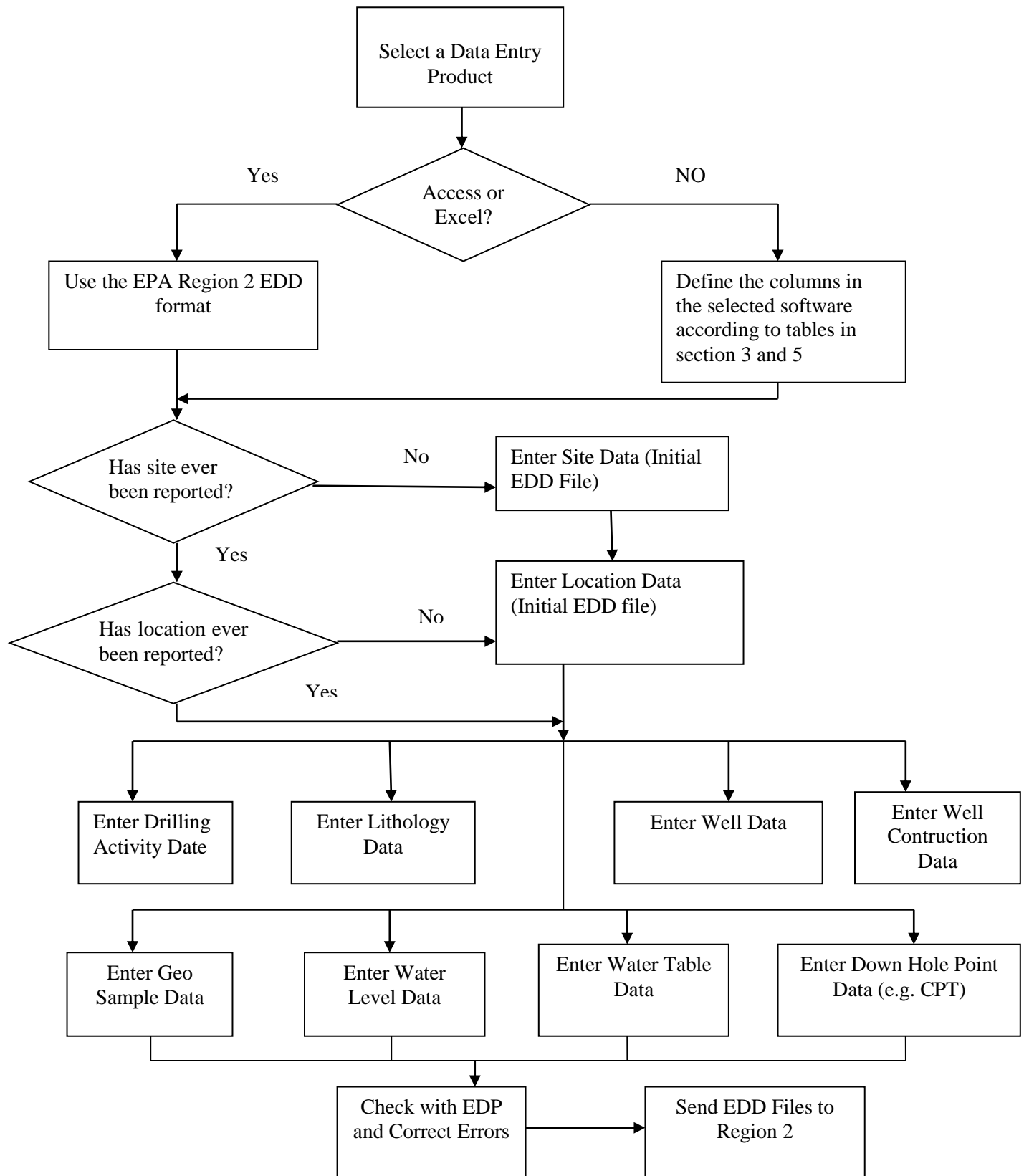


Figure E-2 Process flow diagram for the creation and checking of Initial and Field EDD files



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1. INTRODUCTION TO THE EPA REGION 2 ELECTRONIC DATA DELIVERABLE (EDD)

The EPA Region 2 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 2 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 2. Environmental data collected and analyzed **prior** to the initial use of this EDD specification manual should be reported using the EPA Region 2 “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 2 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 2 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 (Location_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 2 E-Data website (<http://www.epa.gov/region02/superfund/medd.htm>) 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 2. 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 five separate sections:

- General reporting requirements are discussed in Section 2.
- The Initial file structures (i.e., base map, site, data provider and location) are defined in Section 3. These files must be submitted prior to, or in conjunction with, the first Chemistry or Geology EDD submittals.
- The Chemistry file structures are defined in Section 4. In most cases, chemistry data accounts for the majority of data that is reported.
- The Field file structures are defined in Section 5
- The Vapor Intrusion file structures are defined in Section 6.
- The Valid Values Reference Manual contains tables that list valid values for all data fields.

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

EPA Region 2 expects all fields referred to as “Required” or “If available” to be filled in. If data for fields referred to as “If available” or “If applicable” are not available or applicable, respectively, a description of why these fields are not available or applicable should be included in the cover letter that accompanies the EDD submittal. Data fields indicated as “Reserved for future use” should not be reported. 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 2 format will be given time to transition to any national format changes.

Excited News: EPA Region 2 EQuIS database has been upgraded to version 6.4, some of the EDD requirements have been changed, please check out the [“EPA Region 2 EQuIS 6 EDD format edits release notes.pdf”](#) to get the summary of all new changes in the EDD format. Detail of changes can be found in this document sections 3, 4, 5 and 6, and they will be **highlighted in green**.

2. GENERAL EDD REPORTING REQUIREMENTS

2.1 File Formats

With the exception of the electronic base map, all data from the EPA Region 2 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 2.8). The maximum length of each text field is indicated in parentheses in the EDD tables shown in Sections 3, 4, 5, and 6. 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). Guidance on creating text files can be found in Section 2.15.

2.2 Initial Data Submittals

The initial data submittal consists of a site base map and three data files: the Site (Site) file, Data Provider (DataProvider) and the Location (Location) file including facility center point in latitude longitude coordinate. Initial submittals provide information pertaining to the site, the site EDD contact, and site sampling locations. The base map, Site file, data provider and Location file 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 Initial EDD files. Detailed instructions for creating the Initial EDD files are provided in Section 3, “Formats for Initial Files”. Instructions for submitting your EDDs to EPA Region 2 are presented in Section 2.16.

Table 2-1 General information on the files that comprise the Initial EDD

| 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. |

| File Type | File Name | Created By | Contents | What makes a row of data unique? | Dependence of other files on these data |
|---------------------------|---|--------------------------|---|----------------------------------|--|
| Data Provider | SiteNameDate. EPAID. DataProvider_v3.txt (or csv) | Data Provider | Information about the data provider | Data_Provider_code | Not applicable |
| Site (Section 3.3) | SiteNameDate. EPAID. Site_v3. txt (or csv) | Data provider | One-time definition of site including EPA Region 2 data providers' contact information. | site_code | The location file cannot be loaded without properly referenced sites (site_code). |
| Location (Section 3.4) | SiteNameDate. EPAID. Location_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. |

2.3 Chemistry Data Submittals

Chemistry EDDs are submitted after each round of sampling and include the following types of files: chemistry sample information (Sample), sample Parameter (Sample Parameter), test/results with QC (Test Result QC), batch information (Batch).

Table 2-2 provides general information on the files that make up the Chemistry EDD. Detailed instructions for creating the Chemistry EDD files are provided in Section 4, "Formats for Chemistry Files". Instructions for submitting your EDDs to EPA Region 2 are presented in Section 2.16.

Table 2-2 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) | SiteNameDate. EPAID.Sample_v3. txt (or csv) | Data provider's field sampling team(s) | One row for each sample collected at the site. | sys_sample_code | Tests/results QC and batch data can only be reported for samples that are defined in this file. |

Table 2-2 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 Parameter (Section 4.2) | SiteNameDate.EPAID.SampleParameter_v3.txt (or csv) | Data provider's field sampling team (s) | Parameter data associated with a sample sent to a lab | Sys_sample_code | None |
| Test/ Result with QC Data (Section 4.3) | SiteNameDate.EPAID.TestResultQC_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) | SiteNameDate.EPAID.Batch_v3.txt (or csv) | Data provider's contractor lab(s) | Data that relates laboratory quality control samples with field samples that were processed and analyzed together. | sys_sample_code lab_anl_method_name analysis_date analysis_time total_or_dissolved test_type test_batch_type | None. |

2.4 Field Data Submittals

Field EDD submittals contain data obtained during subsurface investigations at the site. When initially submitting the Field EDD, all field EDD files for which information is available should be submitted. The Field EDD includes files for Drilling Activity (DrillActivity), lithology data (Lithology), general well information (WEL), well construction information (WellConstruction), geology sample data (GeologySamples), general information about the water table (WaterTable), down-hole point data (DownholePoint), soil gas survey data (SoilGas), water table levels (WaterLevel), extraction and injection well (ExtractionInjectionWells), and Field Results (FieldResults). Unlike the Chemistry 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 5.

Table 2-3 provides general information on the files that make up the Field EDD. Detailed instructions for creating the Field EDD files are provided in Section 5, "Formats for Field Files". Instructions for submitting your EDDs to EPA Region 2 are presented in Section 2.16.

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

| File Type | File Name | Created By | Contents | What makes a row of data unique? | Dependence of other files on these data |
|---|---|---|--|---|--|
| Drilling Activity (Section 5.1) | SiteNameDate. EPAID. DrillActivity_v3. txt (or csv) | Data provider's geologist | General Information regarding soil borings. | sys_loc_code event | None. |
| Lithology (Section 5.2) | SiteNameDate. EPAID.Lithology_v3 .txt (or csv) | Data provider's geologist | Lithology data for a borehole. | sys_loc_code start_depth | None. |
| Well (Section 5.3) | SiteNameDate. EPAID.WEL_v3. txt (or csv) | Data provider's geologist | General information regarding wells. | sys_loc_code | Well construction and water level data can only be reported for wells that are defined in this file. |
| Well Construction (Section 5.4) | SiteNameDate. EPAID. WellConstruction_v3 .txt (or csv) | Data provider's geologist | Well construction details recorded during well construction. | sys_loc_code segment_type start_depth material_type_code | None. |
| Geology Samples (Section 5.5) | SiteNameDate. EPAID. GeologySample_v3. txt (or csv) | Data provider's geologist or laboratory | Results for geological, physical properties of samples. | Geo_sample_code | None. |
| Water Table (Section 5.6) | SiteNameDate. EPAID. WaterTable_v3. txt (or csv) | Data provider's geologist | General information pertaining to water table. | sys_loc_code type | None. |
| Down Hole Point (CPT) Data (Section 5.7) | SiteNameDate. EPAID. DownholePoint_v3. txt (or csv) | Data provider's geologist | Results of all down hole logging such as CPT, resistivity, or other geophysical logs. | sys_loc_code depth param | None. |
| Soil Gas | SiteNameDate. EPAID. SoilGas_v3. Txt (or csv) | Data Provider's geologist | Results of information regarding the soil gas | sys_loc_code | None |
| Water Level (Section 5.9) | SiteNameDate. EPAID.WaterLevel_v3.txt (or csv) | Data provider's field sampling team(s) | Groundwater level data for monitoring wells | sys_loc_code measurement_date measurement_time | None. |
| Extraction-Injection Well (Section 5.10) | SiteNameDate. EPAID. ExtractionInjectionWells_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. | sys_loc_code start_measurement_date start_measurement_time | None. |

| File Type | File Name | Created By | Contents | What makes a row of data unique? | Dependence of other files on these data |
|---------------------------------|---|---|--|---|---|
| Field Results (Section 5.11) | SiteNameDate.EPAID.FieldResults_v3.Txt (or csv) | Data provider's field sampling team (s) | Data that relates to collection of field parameters or field results data. | data_provider sys_sample_code field_parameter result_date result_time result_unit sample_matrix_code reportable_result value_type | None |

2.5 Vapor Intrusion Data Submittals

Vapor Intrusion EDD submittals contain data of sampling taken inside of the contaminated sites or buildings. The sample (VI_Sample), Test Result QC (VI_TestResultQC), and Batch (VI_Batch) data are only for Vapor Intrusion data. If the data is collected for Vapor Intrusion, then it is not required to submit the same Sample (Sample), Test Result QC (TestResultQC), and Batch (Batch) data in the Chemistry group. Table 2-4 provides general information on the Vapor Intrusion EDD files. Detailed instructions for creating the Vapor Intrusion EDD files are provided in Section 5, "Format for Vapor Intrusion Files". Instructions for submitting your EDDs to EPA Region 2 are presented in Section 2.16.

Table 2-4 General information on the files that comprise the Vapor Intrusion EDD

| File Type | File Name | Created By | Contents | What makes a row of data unique? | Dependence of other files on these data |
|---|---|--|---|---|---|
| Vapor Intrusion Building Address (Section 6.1) | SiteNameDate.EPAID.VI_Bldg_Address_v3.Txt (or csv) | Data provider's Vapor Intrusion team (s) | Address and contact information for the building | Building_code Building_name | None |
| Building data (Section 6.2) | SiteNameDate.EPAID.VI_Building_v3.Txt (or csv) | Data Provider's Vapor Intrusion team (s) | Building specific data | Building_code Building_name | None |
| Vapor Intrusion Task Parameters (Section 6.3) | SiteNameDate.EPAID.VI_Task_Parameters_v3.Txt (or csv) | Data Provider's Vapor Intrusion team (s) | Additional Sampling parameters collected in the field and not analyzed in the lab | Task_code Param_code | None |
| Vapor Intrusion Samples (Section 6.4) | SiteNameDate.EPAID.VI_Samples_v3.Txt (or csv) | Data Provider's Vapor Intrusion team (s) | Sampling Information for Vapor Intrusion | Data_provider Sys_loc_code Sys_sample_code Sample_matrix_code Task_code Sampling_company_code Sample_start_date | Tests/results QC and batch data can only be reported for samples that are defined in this file. |

| | | | | | |
|--|--|---|-------------|---|------|
| Vapor Intrusion Test Result QC (Section 6.5) | SiteNameDate.EPAID.VI_TestResultQC_v3.Txt (or csv) | Data Provider's Vapor Intrusion team (s) | Test Result | Sys_sample_code Lab_anl_method_name Analysis_date Total_or_dissolved Column_number Test_type | None |
| Vapor Intrusion Batches (Section 6.6) | SiteNameDate.EPAID.VI_Batches_v3.Txt (or csv) | Data Provider's Vapor Intrusion team (s) | Batches | Sys_sample_code Lab_anl_method_name Analysis_date Total_or_dissolved Column_number Test_type Test_batch_type Test_batch_id | None |

2.6 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 5 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 created by the EQuIS EDP users, or obtained from the EPA Region 2 MEDD database administrator.

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 as well as the Program Code that applies to the data package being submitted. The Registry ID will be automatically populated based on the selected Program Code. If the Program Code does not exist, users can enter the Program Code and Registry ID manually. Register ID and Program Code can be obtained from EPA Region 2 MEDD database administrator. For this exercise use your name as the User Name and Password, and 'NY0123456' for the Program Code. This information will be used to create a user certificate file that EQuIS Enterprise uses to ensure a valid user is submitting data for the appropriate Program. **NOTE:** The Program Code and Registry ID are extremely important for Enterprise Data Submittals; however, the data entered into these sections of the Sign and Submit screen may be modified by the user as needed.

3. Click the Save button.

4. 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 Registry ID, a period and the Format File name used to create the EDDs. (Example file name: '20080424.RegID123.EPARegion2EDD.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.

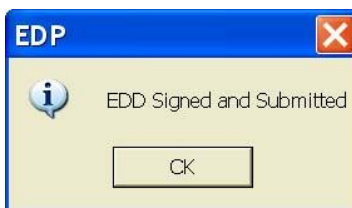


Figure 14: Sign and Submit Verification Window

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

SiteNameDate.EPAIDCode.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 12-character alphanumeric EPA ID for the facility under investigation. IDs for EPA Region 2 sites are provided in Appendix Table A-22. 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, 2000 would be reported in a file named **ABC20000219.XYZ123456789.Sample_v3.txt** (or .csv). In the above

example, the chemistry sample file (Sample) is being submitted, therefore the EDD File Format portion of the file name is Sample_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 2-5 EDD File Naming Formats

| File Type | File Contents | EDD File Name | Submittal Type |
|-----------|-----------------------------|--|----------------|
| Initial | File | SiteName.DXF, *.dwg, or shape files from ArcGIS | Initial |
| Initial | Site | SiteNameDate.EPAIDCode.Site_v3.txt | Initial |
| Initial | Data Provider | SiteNameDate.EPAIDCode.DataProvider_v3.txt | Initial |
| Initial | Location | SiteNameDate.EPAIDCode.Location_v3.txt | Initial |
| Chemistry | Sample | SiteNameDate.EPAIDCode.Sample_v3.txt | Recurring |
| Chemistry | Sample | SiteNameDate.EPAIDCode.SampleParameter_v3.txt | Recurring |
| Chemistry | Test/Results QC | SiteNameDate.EPAIDCode.TestResultQC_v3.txt | Recurring |
| Chemistry | Batch | SiteNameDate.EPAIDCode.Batch_v3.txt | Recurring |
| Field | Drill Activity | SiteNameDate.EPAIDCode.DrillActivity_v3.txt | Non-Recurring |
| Field | Lithology | SiteNameDate.EPAIDCode.Lithology_v3.txt | Non-Recurring |
| Field | Well | SiteNameDate.EPAIDCode.Well_v3.txt | Non-Recurring |
| Field | Well Construction | SiteNameDate.EPAIDCode.WellConstruction_v3.txt | Non-Recurring |
| Field | Geology Samples | SiteNameDate.EPAIDCode.GeologySamples_v3.txt | Non-Recurring |
| Field | Water Table | SiteNameDate.EPAIDCode.WaterTable_v3.txt | Non-Recurring |
| Field | Down Hole Point (CPT) Data | SiteNameDate.EPAIDCode.DownholePoint_v3.txt | Non-Recurring |
| Field | Soil Gas Data | SiteNameDate.EPAIDCode.SoilGas_v3.txt | Non Recurring |
| Field | Water Level | SiteNameDate.EPAIDCode.WaterLevel_v3.txt | Recurring |
| Field | Extraction – Injection Well | SiteNameDate.EPAIDCode.ExtractionInjectionWells_v3.txt | Recurring |
| Field | Field Results | SiteNameDate.EPAIDCode.FieldResults_v3.txt | Recurring |

2.7 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, 4, 5, and 6 or in the tables in the Appendix of this manual. For example, sample matrix information is inputted in the

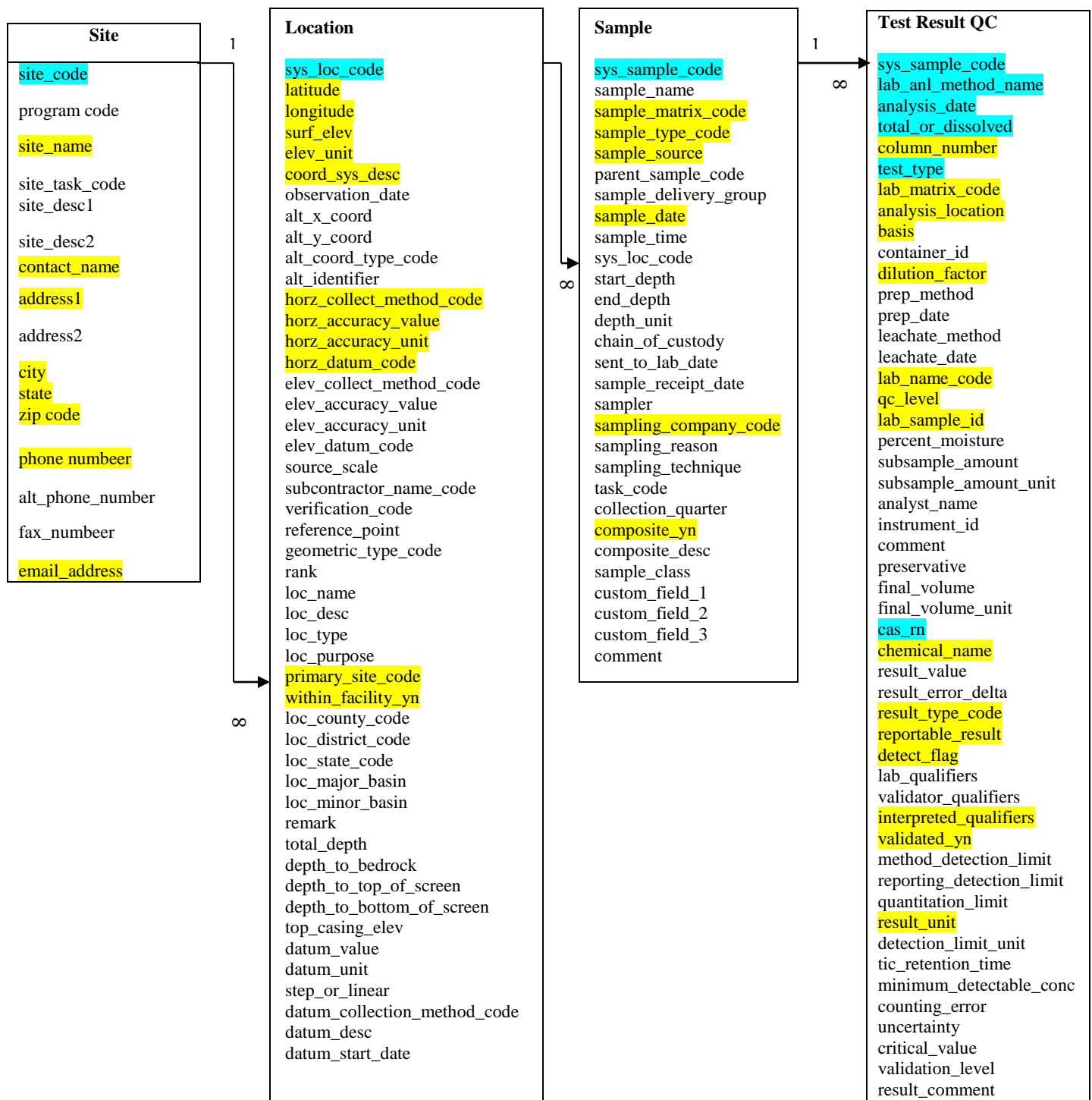
sample_matrix_code field of the sample file and must be reported using one of the values provided in Table A-1 in the Appendix.

- **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 primary 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 Chemistry 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 SITE 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 and the Location EDD file 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 chemistry file data structures.



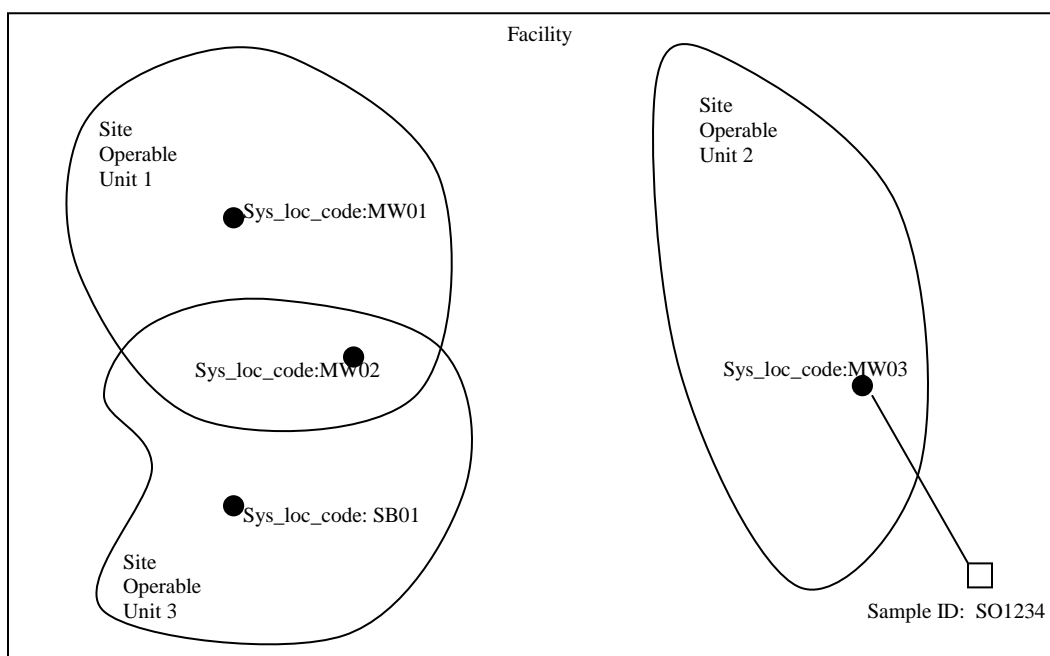
Shaded fields are required to have data. Blue fields define row uniqueness for the specified file.

2.8 Definition of a Facility, Site, and Location

To submit and error-free EDD, it is important to understand how EPA Region 2 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

2.9 Reporting Null Values

When a field is not listed as required in Sections 3, 4, 5, and 6, 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 2-6 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 2-6 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. |

2.10 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 2 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 2 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 laboratory 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 2-7 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 |
| Reference Point | A-2 | reference_point | 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 |
| Source Scale | A-8 | source_scale | Location |
| 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 |
| 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 |
| Laboratory | A-17 | lab_name_code | Test/Results |
| Unit | A-18 | various_unit fields throughout all files | All Files |

| Valid Value Table Name | Table Number | Field Name | EDD File |
|-------------------------------|--------------|----------------------------------|--|
| 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) | 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 |
| Fraction (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 |

2.11 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 2.8 provides examples of reporting re-tests.

Table 2-8 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 |

2.12 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 2.9 presents examples of how to report non-detects.

Table 2-9 Example of reporting non-detects

| Cas rn | Result Value | Detect Flag | Reporting Detection Limit | Detection Limit Unit | Result comment | Laboratory qualifiers |
|----------|--------------|-------------|---------------------------|----------------------|----------------|-----------------------|
| 108-88-3 | .15 | Y | .005 | ug/ml | | U |
| 108-88-3 | | N | .005 | ug/ml | not detected | U |

2.13 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 2 EDD only allows for reporting up to 10 TICs. Only the 10 most concentrated or most relevant TICs should be reported. Table 2-10 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 2-10 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 |

2.14 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 2-11 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. |

2.15 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 2-12 provides instructions for creating tab-delimited text files from some widely-used software packages.

Table 2-12 Instructions for producing tab-delimited text files from some software packages

| Package | Type | Instructions |
|----------------|----------------|--|
| Access | Database | <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> 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 | <p>[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?]</p> <ol style="list-style-type: none"> 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 | <ol style="list-style-type: none"> 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. |

2.16 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 2. 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 2. EDD files that pass through the EDP error-free should also result in error-free import at EPA Region 2.

EDP is currently available as a no-cost download from the EPA Region 2 website located at <http://www.epa.gov/region02/superfund/medd.htm>. Instructions on how to install and use the EDP are also provided on the website.

2.17 Submitting Your EDD to EPA

It is preferred to submit by e-mail, e-mail submittals may be provided with cc: Remedial Project Manager (RPM). Each EDD must be accompanied by a cover letter that specifies the name of the site, the contact for any EDD technical questions regarding file names, any exceptions to the EDD format, any requests for additional valid values, etc. Larger files should be zipped and renamed e.g. *.piz.

All electronic submittals should be sent to: Region2_EQUISedd@epa.gov and cc:ed RPM

If you cannot submit files electronically, contact the EDD coordinator.

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 2. EPA Region 2 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 2 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 2. 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 2001 that includes a location file (e.g., ABC20010121.EPAID.Location_v3.txt) that contains ten locations, and the EDD is accepted by EPA Region 2 and loaded into the EPA database. If, in 2003, 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., ABC20031108.EPAID.Location_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.

2.18 Examples of Initial, Chemistry, and Field EDD Files

Examples of Initial, Chemistry and Field 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 2. In order to fit the examples on one page, not all of the fields (i.e., columns) were included for certain files (e.g., Site, Location, Chemistry 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 2.9 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 Initial EDD ready for conversion to text file

Site File:

| site_code | facility_id | site_name | site_task_code | site_desc1 | site_desc2 | contact_name | address1 | <i>Additional Fields</i> | email_address |
|-----------|--------------|--------------|----------------|------------|------------|--------------|----------------|--------------------------|---------------|
| Example | NJD123456723 | Example Site | | | | John Smith | 23 Main Street | | abc@abd.com |

Location File:

| sys_loc_code | Latitude | Longitude | surf_elev | elev_u nit | coord_sys_desc | observation _date | alt_x_coord | Alt_y_coord | alt_coord_t ype-code | alt_identi fier | <i>Additional Fields</i> | comment |
|--------------|----------|------------|-----------|---------------|----------------|----------------------|-------------|-------------|-------------------------|--------------------|--------------------------|---------|
| MW01 | 44.24543 | -73.445678 | 120.2 | ft | LAT LONG | 02/21/1999 | 440022.31 | 399612.23 | SP | 1 | | |
| SB-01 | 44.24304 | -73.470923 | 126.3 | ft | LAT LONG | 02/23/1999 | 442430.31 | 393574.22 | SP | 1 | | |
| MW03 | 44.24700 | -73.460123 | 130.1 | ft | LAT LONG | 02/22/1999 | 442470.22 | 399701.25 | SP | 1 | | |
| MW04 | 44.24700 | -73.460123 | 130.1 | ft | LAT LONG | 02/22/1999 | 442356.51 | 399701.48 | SP | 1 | | |

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

Sample File:

| sys_sample_code | sample_name | sample_matrix_code | sample_type_code | sample_source | parent_sample_code | sample_delivery_group | sample_date | sys_loc_code | <i>Additional Fields</i> | comment |
|-----------------|-------------|--------------------|------------------|---------------|--------------------|-----------------------|------------------------|--------------|--------------------------|---------|
| MW01040198 | | WG | N | Field | | | 04/01/1998 12:00:00 | MW01 | | |
| MW02040198 | | WG | N | Field | | | 04/01/1998 12:00:00 | MW02 | | |

Test Result QC File:

| 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 |
|-----------------|---------------------|-------------------|--------------------|---------------|------------|-----------------|-------------------|-------|-------------------|-----------------|---------------|----------|---------------|-------------------|
| MW02040198 | SW8240 | | T | | Initial | WG | LB | Wet | | 1.0 | ABC | quant | LAB01 | |
| MW02040198 | SW8240 | | T | | Initial | WG | LB | Wet | | 1.0 | ABC | quant | LAB02 | |
| MW02040198 | SW8240 | | T | | Reanalysis | WG | LB | Wet | | 10.0 | ABC | quant | LAB02R | |

Test Result QC (Continue):

| cas_rn | chemical_name | result_value | result_error_delta | result_type_code | reportable_result | detect_flag | lab_qualifiers | Validate_d_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 | | | | |

Down Hole 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 INITIAL FILES

This section contains information regarding the base map and the two files included in the initial EDD. These files need to be submitted prior to, or in conjunction with, the first Chemistry EDD or Geology EDD submittals. These files only need to be submitted once unless information in the files changes or additional information, such as 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 Site Base Maps in the file section

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 2). 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.

Table 3-1 Files

| 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 this file is associated with | No |
| 9 | Place_code | Text (50) | If available | Code/identifier of the place this file is associated 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. Data Provider

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

SiteNameDate.EPAIDCode.DataProvider_v3.txt (or .csv)

Table 3-2 Data Provider File Structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|---------------------------|-----------|--------------|--|-----------------------------|
| 1 | Data_Provider _Code | Text (20) | Required | Data Provider company code | A-23 |
| 2 | Data_Provider | Text(70) | Required | This is the name of the company who is responsible for providing the site data. | A-23 |
| 3 | Data_Contact _Name | Text(50) | Required | This is the name of the contact person who is responsible for providing the site data. | No |
| 4 | Data_Contact _Address1 | Text (40) | Required | Data Provider address 1 | No |
| 5 | Data_Contact _Address2 | Text (40) | If available | Data Provider address 2 | No |
| 6 | Data_Contact _City | Text (30) | Required | Data Provider city | No |
| 7 | Data_Contact _State | Text(2) | Required | Contact state | No |
| 8 | Data_Contact_zi pcode | Text(30) | Required | Contact zip | No |
| 9 | Data_Contact _country | Text (50) | Required | Data Provider Country | No |
| 10 | Data_Contact _Phone | Text(20) | Required | Contact phone number | No |
| 11 | Data_Contact _email | Text(100) | Required | Contact email address | No |
| | | | | | |

3.3 SITE EDD File

The SITE 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. The SITE file is a required part of any initial EDD submittal. An example of a Site file is provided in Figure 2-3, section 2.17. **NOTE:** If the SITE EDD file was previously submitted, including as part of a “Historic Data EDD”, as described in the Region 2 “EDD Manual for Historical Data”, you DO NOT need to resubmit the file again.

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

SiteNameDate.EPAIDCode.Site_v3.txt (or .csv)

Table 3-3 SITE data file structure

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

Table 3-3 SITE data file structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|-------------|--------------------|------------------|-----------------|--|-------------------------------------|
| 1 | site_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 | Program_Code | Text(20) | If available | This is equivalent to the EPA CERCLIS ID number, or SRPID or other state program code. | Table A-22 |
| 3 | site_name | Text(60) | Required | Name of site | Table A-22 |
| 4 | site_task_code | Text(20) | If available | 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 |
| 5 | site_desc1 | Text(255) | If available | General description of the site. | No |
| 6 | site_desc2 | Text(255) | If available | Additional description of site, if necessary. | No |
| 7 | contact_name | Text(50) | Required | Name of person to contact if EPA Region 2 has any questions about the EDD. | No |
| 8 | address1 | Text(40) | Required | Site address, part one. | No |
| 9 | address2 | Text(40) | If available | Site address, part two. Default to null if information is not needed | No |
| 10 | City | Text(30) | Required | Site city. | No |
| 11 | State | Text(2) | Required | Site state. | No |
| 12 | Zipcode | Text(10) | Required | Site zip code. | No |
| 13 | phone_number | Text(30) | Required | Site contact phone number. | No |
| 14 | alt_phone_number | Text(30) | If available | Alternate phone number for site contact. Default to null where the data are not available. | No |
| 15 | fax_number | Text(30) | If available | Fax number of site contact. Default to null where the data is not available. | No |
| 16 | email_address | Text(100) | Required | Site contact e-mail address. | No |

3.4 Location EDD File

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 2.16 “Submitting Your EDD to EPA” for more information regarding submitting updated data files.

The data structure of the LOCATION EDD file includes fields (Table 3-2 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 2 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 2.17.

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

SiteNameDate.EPAIDCode.Location_v3.txt (or .csv)

Table 3-4 Location Data File Structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|---------------|-------------------------------------|----------|---|--------------------------|
| 1 | Data Provider | Text(20) | Required | Data Provider company code | A-23 |
| 2 | 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 |
| 3 | Latitude | Number w/decimal precision up to 15 | Required | Latitude of sampling location in decimal degrees (dd.xxxxxx). Please provide 6 decimal digits. This field accepts "zero" (0)s if the loc_type = "Drum", "WSTAP", "SEISMIC", "WI", "REMEDIATION" and "LANDFILL" | No |
| 4 | Longitude | Number w/decimal precision up to 15 | Required | Longitude of sampling location in decimal degrees. Must be negative for western hemisphere (-ddd.xxxxxx). Please provide 6 decimal digits. This field accepts "zero" (0)s if the loc_type = "Drum", "WSTAP", "SEISMIC", "WI", "REMEDIATION" and "LANDFILL" | No |
| 5 | surf_elev | Number w/decimal precision up to 15 | 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 |
| 6 | elev_unit | Text(2) | Required | Unit of measurement for elevations. | Units must be in ft/m |

Table 3-4 Location Data File Structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|-------------|--------------------------|------------------|---|--|--|
| 7 | 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 |
| 8 | observation_date | DateTime | If available | Date observation or site survey was made. | No |
| 9 | alt_x_coord | Text(20) | If available | X_ state plane or UTM NAD83 coordinate | No |
| 10 | alt_y_coord | Text(20) | If available | Y_ state plane or UTM NAD83 coordinate | No |
| 11 | alt_coord_type_code | Text(20) | If available | 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 |
| 12 | alt_Identifier | Text(20) | It is required when "alt_x_coord" and "alt_y_coord" are populated | For use by EPA Region 2. This field is associated with the alt_x and alt_y . Use the value 'PRIMARY' | No |
| 13 | horz_collect_method_code | Text(3) | required | Method used to determine the latitude/longitude measurements. Horizontal Collection Method. | Table A-3 |
| 14 | horz_accuracy_value | Text(20) | 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(15) | required | Unit of the horizontal accuracy value. | Table A-4. Enumeration list contains the codes and description |
| 16 | horz_datum_code | Text(3) | required | Reference datum of the latitude and longitude.. | Table A-5 |
| 17 | elev_collect_method_code | Text(3) | required | 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. | |

Table 3-4 Location Data File Structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|-------------------------|-----------|-------------------------|--|--|
| 19 | elev_accuracy_unit | Text(15) | If available | Unit of the elevation accuracy value. | Table A-18. Enumeration list contains the codes and description. |
| 20 | elev_datum_code | Text(3) | If available | Reference datum for the elevation measurement | Table A-7 |
| 21 | source_scale | Text(2) | *conditional Required | Scale of source used to determine the latitude and longitude.. *required if horizontal Collection Method is prompted. | Table A-8 |
| 22 | subcontractor_name_code | Text(20) | If available | Code used to distinguish subcontractor name. | Table A-23 |
| 23 | verification_code | Text(1) | Reserved for future use | This field is only to be used by EPA Region 2 personnel. Please leave blank. | No |
| 24 | reference_point | Text(3) | Not required | Describes the place at which coordinates were established. Use codes from Table A-2 in the Appendix. | Table A-2. Enumeration list is available in this field. |
| 25 | geometric_type_code | Text(20) | Reserved for future use | This field is for by EPA Region 2 future use. Please leave blank. Value: 'POINT' | No |
| 26 | Rank | Numeric | Reserved for future use | This field is for by EPA Region 2 future use. Please leave blank. | No |
| 27 | loc_name | Text(40) | If available | Sampling location name. | No |
| 28 | loc_desc | Text(255) | If available | Sampling location description. | No |
| 29 | loc_type | Text(20) | Required | 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) | If available | Sampling location purpose. | No |
| 31 | site_code | Text(3) | Required | Unique code for site or area. Must match site_code field from Table 3-1: Site File Data Structure. | Table 3-1 |
| 32 | within_facility_yn | Text(1) | Required | Indicates whether this sampling location is within facility boundaries, "Y" for yes or "N" for no. | Y = Yes N=No |

Table 3-4 Location Data File Structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|-------------------|-------------------------------------|---|---|--------------------------|
| 33 | loc_county_code | Text(20) | Use the 3 digits FIPS county code | Location county code; controlled vocabulary using FIPS (Federal Information Processing Standard) codes. FIPS codes can be found via the internet at http://www.epa.gov/enviro/html/codes/ny.html | No |
| 34 | loc_district_code | Text(3) | If available | Use the EPA region code '002' | No |
| 35 | loc_state_code | Text(2) | 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) | If available | Location minor basin; controlled vocabulary using HUC codes. Any digits after the 8 th (first 8 are reported in loc_major_basin) should be reported here. | No |
| 38 | Remarks | Text(255) | Required when Latitude and Longitude are zeros (0000.....) and loc_type does not equal to any of the indicated location types that allow zeros. | Location specific comment. | No |
| 39 | total_depth | Number w/decimal precision up to 15 | Required when the location type (loc_type) is MW, EXWELL, RW. | Total depth below ground surface of boring, in feet. | No |
| 40 | depth_to_bedrock | Number w/decimal precision up to 15 | If available | Depth below ground surface of bedrock in feet. | No |

Table 3-4 Location Data File Structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|---------------------------|-------------------------------------|--|--|--------------------------|
| 41 | depth_to_top_of_screen | Number w/decimal precision up to 15 | If available | 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 |
| 42 | depth_to_bottom_of_screen | Number w/decimal precision up to 15 | If available | 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 | If available | 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 | If available | This field is for by EPA Region 2 future use. Please leave null. | No |
| 45 | datum_unit | Text (15) | Reserved for future use | This field is for by EPA Region 2 future use. Please leave null. | Table A-18 |
| 46 | step_or_linear | Text (6) | Reserved for future use | This field is for by EPA Region 2 future use. Please leave null. Value: 'Step', 'Linear' | No |
| 47 | datum_collect_method_code | Text (2) | Reserved for future use | This field is for by EPA Region 2 future use. Please leave null. | No |
| 48 | datum_desc | Text(70) | Reserved for future use | This field is for by EPA Region 2 future use. Please leave null. | No |
| 49 | Datum_start_date | DateTime | Required when the datum_value is entered | This field is for by EPA Region 2 future use. If the datum_unit is populated, this value has to be populated. | No |
| 50 | Stream_mile | Numeric | No | This indicates where the river or stream (stream_code) the station exists | No |

Table 3-4 Location Data File Structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|-------------|--------------------|------------------|-----------------|--|---------------------------------|
| 51 | Stream_code | Text (30) | No | This indicates the river or stream in which the station exists. Steam_mile indicates where in the river/ stream the stations exists. | No |

4. FORMATS FOR CHEMISTRY 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 Chemistry 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 Chemistry Sample file is provided in Figure 2-4, section 2.17.

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

SiteNameDate.EPAIDCode.Sample_v3.txt (or .csv)

Table 4-1 Chemistry sample 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(30) | If available | 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 |
| 5 | sample_type_code | Text(4) | 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 |

Table 4-1 Chemistry sample file data structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|-----------------------|-------------------------------------|--|---|-----------------------------------|
| 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) | If available | EPA and most EPA Region 2 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 3-2) 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 | Required when Sample_matrix_code = 'SO' or 'WG' and sample_type_code = 'N' or 'FD' | 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 Chemistry sample file data structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|-----------------------|-------------------------------------|--|---|--------------------------|
| 12 | end_depth | Number w/decimal precision up to 15 | Required when Sample_matrix_code = 'SO' or 'WG' and sample_type_code = 'N' or 'FD' | 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) | Required when start_depth or end_depth is populated. | 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(40) | If available | Chain of custody identifier. A single sample may be assigned to only one chain of custody. | No |
| 15 | sent_to_lab_date | DateTime | If available | Date sample was sent to lab in MM/DD/YYYY format. | No |
| 16 | sample_receipt_date | DateTime | If available | Date that sample was received at laboratory in MM/DD/YYYY format. | No |
| 17 | sampler | Text(30) | If available | Name or initials of sampler. | No |
| 18 | sampling_company_code | Text(20) | 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) | Reserved for future use | Reason for Sampling | No |
| 20 | sampling_technique | Text(40) | If available | Sampling technique. | No |
| 21 | task_code | Text(20) | If available | 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) | Reserved for future use | 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) | If available | Description of composite sample. If sample is not a composite, leave this field null. | No |
| 25 | sample_class | Text(10) | Reserved for future use | Report as null. | No |

Table 4-1 Chemistry sample file data structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|-------------|--------------------|------------------|-------------------------|------------------------------------|---------------------------------|
| 26 | custom_field_1 | Text (20) | Reserved for futurn use | Report as null. | No |
| 27 | custom_field_2 | Text(50) | Reserved for future use | Report as null. | No |
| 28 | custom_field_3 | Text(50) | Reserved for future use | Report as null. | No |
| 29 | comment | Text(255) | If available | Any comments regarding the sample. | No |

4.2 Chemistry Sample Parameter EDD Files

The Chemistry Sample Parameter (SampleParameter) EDD files contain data relating data associated with a sample sent to a lab. Please note: sys_sample_code in this section has to be existed in the Sample_v3 section, otherwise; an “Orphan Row” error will display.

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

SiteNameDate.EPAIDCode.SampleParameter_v3.txt (or .csv)

Table 4-2 Chemistry Sample Parameter 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 Sample_v3 file submitted in the current or previous EDD. | |
| 2 | Param_code | Text(20) | Required | Unique code for sample parameter type. Values: ‘CPEST’, ‘Metals’, ‘VOCs’ | |
| 3 | Measurement_date | DateTime | Required | Date of sample parameter measurement in MM/DD/YYYY HH:MM:SS format. | |
| 4 | Param_unit | Text (15) | If available | Unit of measurement for subsample amount. | Table A-18 |
| 5 | Param_value | Text (255) | | Sample parameter value. | No |
| 6 | Measurement_method | Text (20) | | Measurement method | |
| 7 | Remark | Text (2000) | | Parameter measurement specific comment. | |

4.3 Chemistry Test/Result with QC Data EDD File

The Chemistry 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:

Table 4-3 Chemistry test/results with QC 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 Sample_v3 file submitted in the current or previous EDD. | |
| 2 | lab_anl_method_name | Text(35) | 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 | Fraction (field name was "total_or_dissolved") | Text(4) | Required | Enumeration list contains the values | A-24 |
| 5 | column_number | Text(2) | 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) | Two situations to determine this is a required field: 1. When analysis_location is "FI", this field is not a required field. 2. When analysis_location is not "FI", then this field is required. | 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 |

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

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|-----------------|-----------|--|---|--|
| 10 | container_id | Text(30) | Reserved for future use | Report as null. | No |
| 11 | dilution_factor | Text (4) | Required | Effective test dilution factor. | No |
| 12 | prep_method | Text(35) | 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 | If available | Beginning date of sample preparation. | MM/DD/YYYY HH:MM:SS format |
| 14 | leachate_method | Text(15) | Required if leached | 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 | Required if leached | Beginning date of leachate preparation | MM/DD/YYYY HH:MM:SS format |
| 16 | lab_name_code | Text(20) | Two situations to determine this is a required field: 1. When analysis_location is "FI", this field is not a required field. 2. When analysis_location is not "FI", then this field is required. | 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) | Two situations to determine this is a required field: 1. When analysis_location is "FI", this field is not a required field. 2. When analysis_location is not "FI", then this field is required. | May be either "screen" for screening data or "quant" For quantitative data. Default value is "quant." | Screen = screening Quant = quantitative |

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

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|-----------------------|-----------|--|--|--------------------------|
| 18 | lab_sample_id | Text(40) | Two situations to determine this is a required field: 1. When analysis_location is "FI", this field is not a required field. 2. When analysis_location is not "FI", then this field is 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) | If available | 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) | If available | 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) | Reserved for future use | Report as null. | No |
| 23 | instrument_id | Text(50) | Reserved for future use | Report as null. | No |
| 24 | Comment | Text(255) | If available | Comments about the test, if necessary. | No |
| 25 | Preservative | Text(20) | If available | Sample preservative used. | Table A-27 |
| 26 | final_volume | Numeric | If available | 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 | Required * | Analytical result reported at an appropriate number of significant digits. May be blank for non-detect results. * Required if detect_flag = "Y" and result_type_code is "TRG" or "TIC". | No |
| 31 | Result_error_delta | Text(20) | If available | Error range applicable to the result value; typically used only for radiochemistry results. | No |

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

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|-------------|----------------------|------------------|-----------------|---|---------------------------------|
| 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. New condition: Samples with more than one result with the same CAS_RN cannot have Reportable_result = Yes | 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) | If available | Qualifier flags assigned by the laboratory. | No |
| 36 | validator_qualifiers | Text(10) | If available | Qualifier flags assigned by the person who validates the laboratory data. | No |

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

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|-------------|---------------------------|------------------|--------------------------------|--|--|
| 37 | Interpreted_qualifiers | Text(10) | If available/ Required | 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 with the 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 the interpreted_qualifier, please use the qualifier in the Valid Value in A-10 with the description that can closely match with the lab qualifier. EPAR region 2 is not going to add any more qualifiers. | 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 | 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 |
| 40 | reporting_detection_limit | Numeric | Required if detect_flag = N | 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. Accepting negative numbers unless one of the radionological fields are populated: minimum_detectable_conc, counting_error, uncertainty, critical value. | No |

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

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|-------------------------|-----------|--|--|--------------------------|
| 41 | quantitation_limit | Text(20) | If available | 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 |
| 42 | Result_unit | Text(15) | Required if result_value is populated | Units of measurement for the result. Must use valid values from Table A-18 in the Appendix. | Table A-18 |
| 43 | detection_limit_unit | Text(15) | Required if one of the following fields is populated: reporting_detection_limit, method_detection_limit, or quantitation_limit | Units of measurement for the detection limit(s). Must use valid value from Table A-18 in the Appendix. | Table A-18 |
| 44 | tic_retention_time | Text(8) | Required when "Result_type_code" = 'TIC' | Report the value and time when the result type is TIC. | No |
| 45 | Minimum_detectable_conc | Numeric | If available | Minimum detectable concentration or activity. This value should be in the same units as the result_value. | No |
| 46 | Counting_error | Numeric | If available | Counting error as reported by the laboratory. This value should be in the same units as the result_value. | No |
| 47 | Uncertainty | Text (10) | Required if counting_error is populated | The uncertainty of the counting error, value values include "1 sigma" or "2 sigma". This field is required if the counting_error field is populated | "1 sigma", "2 sigma" |
| 48 | Critical_value | Numeric | If available | Critical value as reported by the laboratory. | No |
| 49 | Validation_level | Text (20) | Reserved for future use | EPA defined validation level | No |
| 50 | result_comment | Text(255) | If available | Result specific comments. | No |

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

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|-------------|----------------------|------------------|-----------------|---|---------------------------------|
| 51 | qc_original_conc | Numeric | If applicable | 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 |
| 52 | qc_spike_added | Numeric | If Applicable | 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 |
| 53 | qc_spike_measured | Numeric | If applicable | 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 |
| 54 | qc_spike_recovery | Numeric | If applicable | 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"). This field allows values less than zero. | No |
| 55 | qc_dup_original_conc | Numeric | If applicable | 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 |
| 56 | qc_dup_spike_added | Numeric | If applicable | 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 |

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

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|-------------|-----------------------|------------------|-----------------|---|---------------------------------|
| 57 | qc_dup_spike_measured | Numeric | If applicable | 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 |
| 58 | qc_dup_spike_recovery | Numeric | If applicable | 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"). Also, this field allows values less than zero. | No |
| 59 | qc_rpd | Text(8) | If applicable | 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 |
| 60 | qc_spike_lcl | Text(8) | If applicable | 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 |
| 61 | qc_spike_ucl | Text(8) | If applicable | 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 |
| 62 | qc_rpd_cl | Text(8) | If applicable | Relative percent difference control limit. Required for any duplicated sample. Report as percentage multiplied by 100 (e.g., report "25%" as "25"). | No |
| 63 | qc_spike_status | Text(10) | If applicable | 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 |

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

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|---------------------|-----------|---------------|---|--------------------------|
| 64 | qc_dup_spike_status | Text(10) | If applicable | 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 |
| 65 | qc_rpd_status | Text(10) | If applicable | 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 |
| 66 | Lab_SDG | Text (20) | | Lab Sample Delivery Group (SDG) identifier. A single sample may be assigned to multiple Sample Delivery Group (SDG) based on different analysis. | No |

4.4 Chemistry Batch Data EDD File

The Chemistry Batch (BATCH) 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:

SiteNameDate.EPAIDCode.Batch_v3.txt (or .csv)

Table 4-4 Chemistry batch 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 Sample_v3 file (Table 4-1) submitted in the current or previous EDD. | No |
| 2 | lab_anl_method_name | Text(35) | 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 | Fraction (field name was changed from "total_or_dissolved") | Text(4) | Required | Enumeration list contains the values | A-24 |

| Pos# | Column Name | Data type | Required | Description | Valid Values In Appendix |
|------|-----------------|-----------|-------------------------|--|--------------------------|
| 5 | column_number | Text(2) | Reserved for future use | Report as null. | No |
| 6 | test_type | Text(10) | Required | Type of test. | A-25 |
| 7 | test_batch_type | Text(8) | 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. FORMATS FOR FIELD FILES

This section contains tables that define the file structures for the FIELD EDD. The file structures include drilling activity, lithology, well, well construction, geology samples, water table, down hole point, Soil Gas, Water level, extraction injection wells, and field results 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 2.17.

5.1 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:

SiteNameDate.EPAIDCode.DrillActivity_v3.txt (or .csv)

Table 5-1 Drill activity 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 3-2) submitted in the current or previous EDD. | No |
| 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 | If available | The start depth, in feet below ground surface, of the drilling. | No |
| 4 | end_depth | Number w/decimal precision up to 7 | If available | End depth, in feet below ground surface of the drilling. | No |
| 5 | start_date | Date Time | If available | Date drilling began | MM/DD/YYYY format. |

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|----------------|------------------------------------|--------------|--|--------------------------|
| 6 | Diameter | Number w/decimal precision up to 7 | If available | 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) | If available | Method used to drill boring. | No |
| 9 | fluid | Text (50) | If available | Description of fluid used during drilling. | No |
| 10 | viscosity | Text (50) | If available | Viscosity of drilling fluid. | No |
| 11 | hammer_wt | Text (50) | If available | Weight of hammer, in pounds, used for sampling. | No |
| 12 | hammer_fall | Text (50) | If available | Distance of hammer fall during sampling in inches. | No |
| 13 | lift_mechanism | Text (50) | If available | Type of mechanism used to lift hammer. | No |
| 14 | new_yn | Text (1) | If available | 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) | If available | 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) | If available | 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) | If available | Has the boring been abandoned? "Y" for yes or "N" for no. | Y = yes N= no |
| 18 | replace_yn | Text (1) | If available | 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) | If available | Is well being install for a public use? "Y" for yes or "N" for no. | Y = yes N= no |
| 20 | Purpose | Text (70) | If available | Describe the purpose of the boring event. | No |

5.2 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:

SiteNameDate.EPAIDCode.Lithology_v3.txt (or .csv)

Table 5-2 Lithology file data structure

| Pos# | Column Name | Data Type | Required | Description | Valid Valued In Appendix |
|------|-------------|-----------|----------|-------------|--------------------------|
|------|-------------|-----------|----------|-------------|--------------------------|

Table 5-2 Lithology 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 3-2) 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) | Required | 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) | if applicable | Comments (if any) on the lithologic unit. | No |
| 7 | remark_2 | Text(255) | if applicable | Additional comments on the lithologic unit. | No |
| 8 | Moisture | Text(1) | If available | Was any moisture detected within the lithologic unit? "Y" for yes or "N" for no. | Y = yes N=No |
| 9 | Permeable | Text(20) | If available | Description of the permeability of the lithologic unit such as "impervious," "semi," "pervious," or "very." | No |
| 10 | consolidated_yn | Text(1) | If available | Was lithologic unit consolidated? "Y" for yes or "N" for no. | Y=yes N=no |
| 11 | Color | Text(30) | If available | Color of the lithologic unit. | No |
| 12 | Observation | Text(255) | If available | General field observations of the lithologic unit. | No |
| 13 | Consistency | Text(20) | If available | Description of the consistency of the soil, such as "very soft," "soft," "firm," "hard" or "very hard." | No |
| 14 | Sorting | Text(20) | If available | 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) | If available | Description of grain size. | No |

Table 5-2 Lithology file data structure

| Pos# | Column Name | Data Type | Required | Description | Valid Value In Appendix |
|------|-------------|-----------|--------------|------------------------------------|-------------------------|
| 16 | Odor | Text(20) | If available | Description of odor from the soil. | No |

5.3 Well EDD File

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

SiteNameDate.EPAIDCode.Well_v3.txt (or .csv)

Table 5-3 Well 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 3-2) submitted in the current or previous EDD. | No |
| 2 | Well_id | Text(30) | If available | Well identification number | No |
| 3 | well_description | Text(255) | If applicable | Used for additional well description if necessary. | No |
| 4 | well_owner | Text(30) | If available | Name of entity that owns the well. | No |
| 5 | well_purpose | Text (20) | If available | Purpose of well. | No |
| 6 | well_status | Text (20) | If available | Current status of well. | No |
| 7 | top_casing_elev | Number w/decimal precision up to 15 | 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 when datum_value is populated. | Unit of measure for the well datum. | Table A-18 |
| 10 | datum_desc | Text (255) | Required | Description of the datum, such as "top of well casing." | No |
| 11 | step_or_linear | Text (6) | If available | 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 |

Table 5-3 Well file data structure

| Pos# | Column Name | Data Type | Required | Description | Valid Value In Appendix |
|------|---------------------------|-------------------------------------|--------------|--|-------------------------|
| 12 | 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 | Required | Depth below ground surface of the well bottom. | No |
| 15 | depth_unit | Text (15) | Required | Unit of measurement for depth. | Table A-18 |
| 16 | depth_measure_method | Text (20) | Required | Method of measuring depth of well. | No |
| 17 | stickup_height | Text (8) | If available | 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) | If available | 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 | If available | Date of well installation | MM/DD/YYYY format. |
| 22 | construct_start_date | DateTime | If available | Date well construction began | MM/DD/YYYY format. |
| 23 | construct_complete_date | DateTime | If available | 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) | If available | Type of pump used at well such as centrifugal, propeller, jet, helical, rotary, etc. | No |
| 26 | pump_capacity | Text (6) | If available | 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) | If available | The yield of the pump. | No |
| 29 | pump_yield_method | Text (20) | If available | Method used for pump yield. | No |
| 30 | weep_hole | Text (1) | If available | Is there a weep hole? "Y" for yes or "N" for no. | Y=yes N=No |
| 31 | head_configuration | Text (50) | If available | Description of the well-head. | No |
| 32 | access_port_yn | Text (1) | If available | Is there an access port? "Y" for yes or "N" for no. | Y=yes N=No |
| 33 | casing_joint_type | Text (50) | If available | Type of casing joint, such as "threaded," "flush," or "solvent-welded." | No |
| 34 | Perforator_used | Text (50) | If available | Description of well perforation, such as "slotted," "drilled," or "wound." | No |
| 35 | intake_depth | Number w/decimal precision up to 15 | If available | Depth in feet below ground surface of the well intake. | Feet |
| 36 | Disinfected_yn | Text (1) | If available | Was well disinfected? "Y" for yes or "N" for no. | Y=yes N=No |

Table 5-3 Well file data structure

| Pos# | Column Name | Data Type | Required | Description | Valid Value In Appendix |
|------|---------------------------|-------------------------------------|-------------------------|--|-------------------------|
| 37 | historical_reference_elev | Number w/decimal precision up to 15 | Reserved for future use | 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) | If available | Available for general remarks. | No |
| | | | | | |

5.4 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:

SiteNameDate.EPAIDCode.WellConstruction_v3.txt (or .csv)

Table 5-4 Well construction 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 3-2) 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 |
| 7 | inner_diameter | Number w/decimal precision up to 15 | If available | The inside diameter of the described segment. | No |

Table 5-4 Well construction file data structure

| Pos# | Column Name | Data Type | Required | Description | Valid Value In Appendix |
|------|-------------------|-------------------------------------|--|--|-------------------------|
| 8 | outer_diameter | Number w/decimal precision up to 15 | If available | The outside diameter of the described segment. | No |
| 9 | diameter_unit | Text(15) | Required when the "inner_diameter" or "outer_diameter" is populated. | The unit of diameter measurements | Table A-18 |
| 10 | Thickness | Number w/decimal precision up to 15 | If available | Thickness of the described well segment. | No |
| 11 | thickness_unit | Text(15) | Required when the "Thickness" is populated. | The unit of measurement for thickness. | Table A-18 |
| 12 | slot_type | Text(20) | if applicable | Type of slots in screen segment such as bridge, shutter, and continuous. | No |
| 13 | slot_size | Number w/decimal precision up to 15 | if applicable | Width of slots. | No |
| 14 | slot_size_unit | Text(15) | Required when the "slot_size" is populated. | The unit of measurement for slot size.. | Table A-18 |
| 15 | perf_length | Number w/decimal precision up to 15 | if applicable | Length of perforated portion of screen in feet. | No |
| 16 | screen_type | Text(15) | if applicable | Type of screen. | No |
| 17 | material_quantity | Text(20) | If available | Quantity of material used in pounds. Applicable to annular seal/fill material. | No |
| 18 | material_density | Text(20) | If available | Density of the annular seal material in lbs/ft ³ . | No |
| 19 | Remark | Text(255) | If available | Remarks regarding the segment. | No |
| | | | | | |

5.5 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 Chemistry EDD.) Each Geology sample EDD file must be named according to the following convention:

Table 5-5 Geology samples 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 3-2) 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) | If available | 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 | 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-19 |
| 9 | sample_desc | Text(255) | If available | 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 | If available | Liquid limit (LL) of the sample. | No |
| 12 | plastic_limit | Number w/decimal precision up to 7 | If available | Plastic Limit (PL) of the sample. | No |
| 13 | shrinkage_limit | Number w/decimal precision up to 7 | If available | Shrinkage limit of the sample. | No |
| 14 | flow_index | Number w/decimal precision up to 7 | If available | Flow index of the sample. | No |

Table 5-5 Geology samples file data structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|-------------|--------------------|------------------------------------|---------------------------------|---------------------------------------|---------------------------------|
| 15 | plasticity_index | Number w/decimal precision up to 7 | If available | Plasticity index of the sample. | No |
| 16 | Activity | Number w/decimal precision up to 7 | If available | Activity of the sample. | No |
| 17 | E | Number w/decimal precision up to 7 | If available | Void ratio of the sample. | No |
| 18 | e_max | Number w/decimal precision up to 7 | If available | Maximum void ratio of the sample. | No |
| 19 | e_min | Number w/decimal precision up to 7 | If available | Minimum void ratio of the sample. | No |
| 20 | N | Number w/decimal precision up to 7 | If available | Porosity of the sample. | No |
| 21 | specific_gravity | Number w/decimal precision up to 7 | If available | Specific gravity of the sample. | No |
| 22 | W | Number w/decimal precision up to 7 | If available | Water content of the sample. | No |
| 23 | opt_w | Number w/decimal precision up to 7 | If available | Optimum water content. | No |
| 24 | S | Number w/decimal precision up to 7 | If available | Degree of saturation of the sample. | No |
| 25 | K | Number w/decimal precision up to 7 | If available | Hydraulic conductivity of the sample. | No |
| 26 | K_unit | Text(15) | Required when "K" is populated. | Unit of measure for K.. | Table A-18 |
| 27 | unit_wt | Number w/decimal precision up to 7 | If available | Unit weight of the sample. | No |

Table 5-5 Geology samples 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 | If available | Saturated unit weight of the sample. | No |
| 29 | dry_unit_wt | Number w/decimal precision up to 7 | If available | Dry unit weight of the sample. | No |
| 30 | dry_unit_wt_max | Number w/decimal precision up to 7 | If available | Maximum dry unit weight of the sample. | No |
| 31 | dry_unit_wt_min | Number w/decimal precision up to 7 | If available | Minimum dry unit weight of the sample. | No |
| 32 | density_unit | Text(15) | Required when rel_density is populated. | Unit of measure for the densities of the sample. | Table A-18 |
| 33 | rel_density | Number w/decimal precision up to 7 | If available | Relative density of the sample. | No |
| 34 | rel_compaction | Number w/decimal precision up to 7 | If available | Relative compaction of the sample. | No |
| 35 | Consistency | Text (20) | If available | 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 | If available | Organic carbon content of sample. | No |
| 37 | organic_carbon_unit | Text (15) | Required when "Organic carbon" is populated. | Unit of measurement of organic content. Use values from Table A-18 of the Appendix. | No |
| | | | | | |

5.6 Water Table EDD Files

The water table (TBL) 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:

SiteNameDate.EPAIDCode.WaterTable_v3.txt (or .csv)

Table 5-6 Water table 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 3-2) 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 |
| 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) | If available | Is the water table flowing? “Y” for yes or “N” for no. | Y=yes N=No |
| 6 | measurement_method | Text (50) | If available | Method of measuring water table depth. | No |
| 7 | capped_pressure | Number w/decimal precision up to 15 | If available | Hydrostatic pressure of confined aquifer. | No |
| 8 | capped_pressure_unit | Text (15) | Required when “capped pressure” is populated. | Unit of measure for capped pressure. Use values from Table A-18 in the Appendix. | Table A-18 |
| 9 | reference_point | Text (50) | If available | Description of reference point from which depth measurements were taken. | No |
| 10 | reference_elevation | 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 | If available | Temperature of water in the water table. | No |

Table 5-6 Water table file data structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|------------------|-----------|---|--|--------------------------|
| 12 | temperature_unit | Text (15) | Required when "Temperature" is populated. | Unit of temperature. Use values from Table A-18 in the Appendix. | Table A-18 |

5.7 Geology Down Hole Point Data EDD File

The Geology down hole 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 5-8 presents the DHP EDD file structure.

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

SiteNameDate.EPAIDCode.DownholePoint_v3.txt (or .csv)

Table 5-7 Geology Down Hole Point 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 3-2) 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) | If available | Measured unit of the parameter | No |

Table 5-8 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 |

| Sys_loc_code | Depth | Param | Param_Value |
|--------------|-------|---------------|-------------|
| MW01 | 11.2 | Sleeve stress | 5.8 |
| MW02 | 9.5 | Resistivity | 510 |
| MW02 | 10.1 | Resistivity | 521 |
| MW02 | 11.0 | Resistivity | 889 |

5.8 Soil Gas Data EDD File

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

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

SiteNameDate.EPAIDCode.SoilGas_v3.txt (or .csv)

Table 5-9 Soil Gas 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 | Date | Required | Sample survey date | N/A |
| 3 | Parameter_code | Text(20) | Required | Parameter measured by soil gas survey | N/A |
| 4 | Reading_depth | Text(8) | Required | Depth of soil gas survey measurement | N/A |
| 5 | Reading_unit | Text(15) | Required | Parameter measured by soil gas survey | N/A |
| 6 | Reading | Text(15) | 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) | If Available | Sampling method | N/A |
| 9 | Instrument_type | Text(15) | If Available | Instrument type | N/A |
| 10 | East | Text(14) | If Available | Easting coordinate of soil gas survey measurement | N/A |
| 11 | North | Text(14) | If Available | Northing coordinate of soil gas survey measurement | N/A |
| 12 | Secondary_east | Text(14) | If Available | Secondary easting coordinate of soil gas survey measurement | N/A |
| 13 | Secondary north | Text(14) | If Available | Secondary easting coordinate of soil gas survey measurement | N/A |
| 14 | Lithology_code | Text(10) | If Available | Lithology code | N/A |
| 15 | Area_desc | Text(70) | If Available | Discription of area | N/A |
| 16 | Equipment_code | Text(60) | If Available | Equipment_code | N/A |
| 17 | Borehole_drill_method | Text(10) | If Available | Drilling method | N/A |
| 18 | Technician | Text(50) | If Available | Technician | N/A |
| 19 | Remark | Text(255) | If Available | remark | N/A |

5.9 Water Level

The Water Level (WaterLevel) 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 Chemistry Sample (Sample) 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 2.17. Each water level file must be named according to the following convention:

SiteNameDate.EPAIDCode.WaterLevel_v3.txt (or .csv)

Table 5-10 Water Level 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 3-2) 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 5-10 Water Level 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 | If available | Elevation of water level. Elevation must be in feet. | Feet |
| 6 | corrected_depth | Number w/decimal precision up to 7 | If available | 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 | If available | 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 | If available | The depth below ground surface to the bottom of the well. | No |
| 9 | depth_unit | Text (15) | Required when “corrected_elev” or “measure_depth_of_well” is populated. | Unit used for depth measurements. See Table A-18 in the Appendix for appropriate values. | Table A-18 |
| 10 | Technician | Text (30) | If available | Name of technician measuring water level | No |
| 11 | dry_indicator_yn | Text (1) | If available | 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) | If available | Method used to make water level measurements. | No |
| 13 | batch_number | Text (10) | If available | Batch number of group of measurements. | No |
| 14 | dip_or_elevation | Text (10) | If available | 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) | If available | Any necessary remarks related to groundwater or surface water information provided in this EDD file. | No |

Table 5-10 Water Level 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 | If applicable | 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 | If applicable | Depth to the top surface of the dnapl in feet below the reference elevation | No |
| 20 | Task_code | Text(40) | If available | 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 |
| | | | | | |

5.10 Extraction – Injection Well 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 2 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 a

Extraction-Injection Well file is provided in Figure 2-4, section 2.17. Each Extraction-Injection Well EDD file must be named according to the following convention:

SiteNameDate.EPAIDCode.ExtractionInjectionWells_v3.txt (or .csv)

Table 5-11 Extraction-Injection Well 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 3-2) 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 | Date | 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) | If Available | 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_type | Text(14) | If available | 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) |

Table 5-11 Extraction-Injection Well file data structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|-------------|--------------------|------------------|-----------------|---|---------------------------------|
| 11 | suction | Text(14) | If available | Vacuum in well (e.g., wellpoint vacuum) or well casing (e.g., vacuum well), reported in equivalent feet of water. | No |
| 12 | remark | Text(255) | If available | Remarks regarding the pumping rate measurements. | No |
| | | | | | |

5.11 Field Parameters

During purging of the well, monitor and record the field indicator parameters (turbidity, temperature, specific conductance, pH, Eh, and DO) approximately every five minutes. These parameters must be submitted using EPARSFRES section. Each Field Results file must be named according to the following convention:

SiteNameDate.EPAIDCode.FieldResults_v3.txt (or .csv)

Table 5-12 Field Results file data structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|--------------------|-----------|--|--|--------------------------|
| 1 | data_provider | Text (20) | Required | Data provider company code | No |
| 2 | 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 3-2) submitted in the current or previous EDD. | No |
| 3 | 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 Sample_v3 file submitted in the current or previous EDD. | No |
| 4 | field_parameter | Text (15) | Required | Field Parameter | Table A-15 |
| 5 | start_depth | Numeric | Required when the sample_matrix_code = "SO" or "WG" | Sample start depth | No |
| 6 | end_depth | Numeric | Required when the sample_matrix_code = "SO" or "WG" | Sample end depth | No |
| 7 | depth_unit | Text(2) | Required when start_depth or end_depth is populated. | Sample depth unit. | Ft, m |
| 8 | result_date | DateTime | Required | Result Date/time | mm/dd/yr hh:mm:ss format |
| 9 | result_time | Text(8) | Required | Time result was collected. | hh: mm:ss format |
| 10 | result_value | Text(14) | Required | Result value. | No |
| 11 | result_unit | Text(15) | Required | Result unit. | Table A-18 |
| 12 | quantitation_limit | Text(20) | If available | Quantitation limit | No |

Table 5-12 Field Results file data structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|-------------|-----------------------|------------------|-----------------|--|---------------------------------|
| 13 | task_code | Text(20) | If available | 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 |
| 14 | sample_matrix_code | Text(20) | Required | Sample Code that identifies the matrix being sampled, such as soil, groundwater, or sediment. For acceptable valid values, see Table A-1 in the Appendix. matrix code | Table A-1 |
| 15 | qualifier | Text(20) | If available | Interpreted qualifier flag assigned by the data provider | Table A-10 |
| 16 | sampling_company_code | Text(20) | If available | 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.) | Table A-23 |
| 17 | sampling_reason | Text(40) | If available | Reason for sampling | No |
| 18 | sampling_method | Text(40) | If available | Sampling method | No |
| 19 | reportable_result | Text(10) | Required | Reportable result | Yes, No, Y, N |
| 20 | value_type | Text(10) | Required | How value was derived Values are: ACTUAL, CALCULATED, ESTIMATED | No |
| 21 | remark | Text(225) | If available | Remark | No |

6. FORMATS FOR VAPOR INTRUSION FILES

Vapor Intrusion data submittals contain data of sampling taken inside of the contaminated sites or buildings.

6.1 Vapor Intrusion Building Address EDD File

The Vapor Intrusion Building Address (VI_Bldg_Address) contains address and contact information for the building.

Each Vapor Intrusion file must be named according to the following convention:

SiteNameDate.EPAIDCode.VI_Bldg_Address_v3.txt (or .csv)

Table 6-1 Vapor Intrusion Building Address data structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|------------------|------------|----------|--|-----------------------------|
| 1 | building_code | Text(20) | Required | Unique code that identifies the building within the facility (i.e. B001, B002, etc.) | |
| 2 | building_name | Text (60) | Required | Name of site | |
| 3 | contact_name | Text (50) | | Building contact name | |
| 4 | address1 | Text (40) | | Building address, part one. | |
| 5 | address2 | Text (40) | | Building address, part two | |
| 6 | city | Text (30) | | Building city | |
| 7 | state | Text (2) | | Building state | |
| 8 | zip_code | Text (10) | | Building zipcode | |
| 9 | county | Text (50) | | Building county | |
| 10 | phone_number | Text (30) | | Building contact phone number | |
| 11 | alt_phone_number | Text (30) | | Alternative site phone number | |
| 12 | fax_number | Text(30) | | Building contact fax number. | |
| 13 | email_address | Text(100) | | Building contact email address. | |
| 14 | remark | Text(2000) | | Remark | |

6.2 Vapor Intrusion Building EDD Files

The Vapor Intrusion Building (VI_Building) contains specific data about the building.

Each Vapor Intrusion building file must be named according to the following convention:

SiteNameDate.EPAIDCode.VI_Building_v3.txt (or .csv)

Table 6-2 Vapor Intrusion Building data structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|----------------------------|------------|----------|--|-----------------------------|
| 1 | building_code | Text(20) | Required | Unique code that identifies the building within the facility (i.e. B001, B002, etc.) | |
| 2 | building_name | Text(255) | Required | Building name (i.e. Denison Medical Building) | |
| 3 | building_type | Text(20) | | Type of building (i.e. Residential, Industrial, etc.) | |
| 4 | building_size | Text(20) | | Size of building (Small, Medium, Large) | |
| 5 | num_floors | Numeric | | Number of floors in the building | |
| 6 | construct_year | Numeric | | Year of construction | |
| 7 | foundation_depth | Numeric | | Foundation depth (below ground surface) | |
| 8 | foundation_depth_unit | Text(15) | | Foundation depth unit | |
| 9 | foundation_type | Text(20) | | Foundation type (i.e. Basement, crawlspace, ect.) | |
| 10 | foundation_wall_material | Text(20) | | Foundation wall material | |
| 11 | foundation_floor_material | Text(20) | | Foundation floor material | |
| 12 | foundation_wall_thickness | Numeric | | Foundation wall thickness | |
| 13 | foundation_floor_thickness | Numeric | | Foundation floor thickness | |
| 14 | foundation_thickness_unit | Text(15) | | Foundation thickness units | |
| 15 | attached_garage_yn | Text(1) | | Existence of an attached garage (Y/N)? | |
| 16 | radon_mitigation_yn | Text(1) | | Existence of radon mitigation system (Y/N)? | |
| 17 | heat_fuel_type | Text(255) | | Type of heating fuels (i.e. Natural gas) | |
| 18 | heat_system_type | Text(255) | | Type of heating system (i.e. Forced hot air) | |
| 19 | central_air_yn | Text(1) | | Existence of central air system (Y/N)? | |
| 20 | sump_yn | Text(1) | | Existence of sump pump (Y/N)? | |
| 21 | voc_mitigation_yn | Text(1) | | VOC mitigation flag (Y/N)? | |
| 22 | remark | Text(2000) | | Building remarks | |
| 23 | custom_field_1 | Text(255) | | | |
| 24 | custom_field_2 | Text(255) | | | |
| 25 | custom_field_3 | Text(255) | | | |
| 26 | custom_field_4 | Text(255) | | | |
| 27 | custom_field_5 | Text(255) | | | |

6.3 Vapor Intrusion Task Parameter EDD File

The Vapor Intrusion Task Parameter (VI_Task_Parameter) contains additional sampling parameter collected in the field and not analyzed in the lab.

Each Vapor Intrusion Task Parameter file must be named according to the following convention:

SiteNameDate.EPAIDCode.VI_Task_Parameter_v3.txt (or .csv)

Table 6-3 Vapor Intrusion Task Parameter data structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|-------------------|------------|----------|--|--------------------------|
| 1 | task_code | Text(40) | Required | Related task code for the parameter | |
| 2 | param_code | Text(20) | Required | Parameter code which related to the parameter type (i.e. TEMP) | |
| 3 | task_desc | Text(255) | | Task description | |
| 4 | building_use_type | Text(20) | | The use of the building at the time of the sampling event | |
| 5 | measurement_date | DateTime | | Measurement date | |
| 6 | param_value | Text(255) | | The value of the parameter | |
| 7 | param_unit | Text(15) | Required | The unit of measure of the parameter | Table A-18 |
| 8 | remark | Text(2000) | | Additional remarks or descriptor for the parameter | |

6.4 Vapor Intrusion Sample EDD file

The Vapor Intrusion Sample (VI_Samples) contains samples information.

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

SiteNameDate.EPAIDCode.VI_Samples_v3.txt (or .csv)

Table 6-4 Vapor Intrusion Samples data structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|--------------------|-----------|----------|--|--------------------------|
| 1 | data_provider | Text(20) | REQUIRED | Data provider name | |
| 2 | sys_loc_code | Text(20) | REQUIRED | Location identifier of sample collection | |
| 3 | sys_sample_code | Text(40) | REQUIRED | Unique sample identifier | |
| 4 | sample_matrix_code | Text(3) | REQUIRED | Code which distinguishes between different type of sample matrix | Table A-1 |
| 5 | task_code | Text(40) | REQUIRED | Sampling task code | |

| | | | | | |
|----|-----------------------|------------|----------|---|-------------------|
| 6 | sampling_company_code | Text(20) | REQUIRED | Name or initials of sampling company. | |
| 7 | sample_start_date | DateTime | REQUIRED | Sample start date and time | |
| 8 | sent_to_lab_date | DateTime | | Date sample was sent to laboratory for analysis | |
| 9 | chain_of_custody | Text(40) | | Chain of custody | |
| 10 | sample_end_date | DateTime | | Sample end date and time | |
| 11 | sample_duration | Text(20) | | The sampling duration | |
| 12 | sample_duration_unit | Text(15) | | Sample duration units | Table A-18 |
| 13 | floor_material | Text(20) | | Lowest level floor material at sample location | |
| 14 | slab_thickness | Text(20) | | Slab thickness at sample location (in inches) | |
| 15 | subfloor_material | Text(20) | | Material found below the foundation floor | |
| 16 | subfloor_moisture | Text(20) | | Moisture content at subslab sample location (i.e. Dry, Damp, Saturated) | |
| 17 | seal_type | Text(20) | | Type of seal used during sampling (i.e. Beeswax, Clay, Teflon Tape) | |
| 18 | seal_adequate_yn | Text(1) | | Did the sample probe seal pass the tracer test (Y/N)? | |
| 19 | purge_yn | Text(1) | | Was the sample equipment purged in accordance with work plan (Y/N)? | |
| 20 | purge_pid | Numeric | | PID instrument reading | |
| 21 | purge_pid_unit | Text(15) | | PID instrument reading units (i.e. ppb) | |
| 22 | vac_gauge_initial | Numeric | | Vacuum gauge reading immediately after start | |
| 23 | vac_gauge_final | Numeric | | Vacuum gauge reading immediately before end | |
| 24 | vac_gauge_unit | Text(15) | | Vacuum gauge instrument units (i.e. inches of water) | |
| 25 | vapor_loc_desc | Text(255) | | Soil vapor intrusion location description | |
| 26 | sampling_reason | Text(30) | | Reason for sampling | |
| 27 | sampling_method | Text(40) | | Sampling method | |
| 28 | sampler | Text(50) | | Person taking sample. | |
| 29 | remark | Text(2000) | | Remark | |

6.5 Vapor Intrusion Test Result QC

The Vapor Intrusion Test Result QC (VI_TestResultQC) contains data concerning analytical tests performed on samples with quality control data elements.

Each Vapor Intrusion Test Result QC file must be named according to the following convention:

Table 6-5 Vapor Intrusion Test Result QC file data structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|---------------------|-----------|----------|--|--------------------------|
| 1 | 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, but uniqueness throughout the database is the only restriction enforced by EQuIS®. | |
| 2 | lab_anl_method_name | Text(35) | REQUIRED | Laboratory analytical method name or description. A controlled vocabulary column, valid values can be found in the appendix in table lab_anl_method_name. | Table A-16 |
| 3 | analysis_date | DateTime | REQUIRED | Date and time of sample analysis in 'MM/DD/YYYY HH:MM:SS' format. May refer to either beginning or end of the analysis as required by EPA. | |
| 4 | total_or_dissolved | Text(1) | REQUIRED | Must be either 'D' for dissolved or filtered [metal] concentration, or 'T' for everything else | |
| 5 | column_number | Text(2) | REQUIRED | Report as null. | |
| 6 | test_type | Text(10) | REQUIRED | Type of test. Valid values include 'Initial', 'Reextract1', 'Reextract2', 'Reextract3', 'Reanalysis', 'Dilution1', 'Dilution2', and 'Dilution3'. | Table A-25 |
| 7 | lab_matrix_code | Text(3) | | Code which distinguishes between different type of sample matrix. For example, soil samples must be distinguished from ground water samples, etc. See matrix valid value table in the appendix. 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) | | Must be either 'FI' for field instrument or probe, 'FL' for mobile field laboratory analysis, or 'LB' for fixed_based laboratory analysis. | |

| | | | | | |
|----|-----------------------|----------|--|---|-------------------|
| 9 | basis | Text(10) | | 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. The EPA prefers that results are reported on the basis of dry weight where applicable. | |
| 10 | container_id | Text(30) | | Report as null. | |
| 11 | dilution_factor | Numeric | | Effective test dilution factor. If value is less than 1, then you need to put 'concentration factor' in the comment column. | |
| 12 | prep_method | Text(20) | | Laboratory sample preparation method name or description. A controlled vocabulary (i.e., see Prep_mthd_var valid values in the appendix). | Table A-14 |
| 13 | prep_date | DateTime | | Beginning date and time of sample preparation in 'MM/DD/YYYY HH:MM:SS' format. | |
| 14 | leachate_method | Text(15) | | Laboratory leachate generation method name or description. The method name should be sufficient to reflect operation of the laboratory (see analysis method discussion). | |
| 15 | leachate_date | DateTime | | Beginning date and time of leachate preparation in 'MM/DD/YYYY HH:MM:SS' format. | |
| 16 | lab_name_code | Text(20) | | Unique identifier of the laboratory as defined by the EPA. Controlled vocabulary, see lab valid value table in the appendix. | Table A-23 |
| 17 | qc_level | Text(10) | | May be either 'screen' or 'quant'. | |
| 18 | lab_sample_id | Text(40) | | Laboratory LIMS sample identifier. If necessary, a field sample may have more than one LIMS lab_sample_id (maximum one per each test event). | |
| 19 | percent_moisture | Text(5) | | 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%'. | |
| 20 | subsample_amount | Text(14) | | Amount of sample used for test. | |
| 21 | subsample_amount_unit | Text(15) | | Unit of measurement for subsample amount. Controlled vocabulary, see Unit valid values table in appendix. | |
| 22 | analyst_name | Text(30) | | Report as null. | |

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|----|--------------------|-----------|----------|---|--|
| 23 | instrument_id | Text(50) | | Report as null. | |
| 24 | comment | Text(255) | | Comments about the test as necessary. | |
| 25 | preservative | Text(20) | | Sample preservative used. | |
| 26 | final_volume | Numeric | | The final volume of the sample after sample preparation. Include all dilution factors. | |
| 27 | final_volume_unit | Text(15) | | The unit of measure that corresponds to the final_volume. | |
| 28 | cas_rn | Text(15) | REQUIRED | Use values in analyte valid value table. | |
| 29 | chemical_name | Text(75) | REQUIRED | Use the name in the analyte valid value table. | |
| 30 | result_value | Numeric | | Analytical result reported at an appropriate number of significant digits. May be blank for non_detects. | |
| 31 | result_error_delta | Text(20) | | Error range applicable to the result value; typically used only for radiochemistry results. | |
| 32 | result_type_code | Text(10) | REQUIRED | Must be either 'TRG' for a target or regular result, 'TIC' for tentatively identified compounds, 'SUR' for surrogates, 'IS' for internal standards, 'SC' for spiked, compounds, 'CAL' for calculated pore water concentrations. | |
| 33 | reportable_result | Text(10) | REQUIRED | Must be either 'Yes' for results which 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). | |
| 34 | detect_flag | Text(2) | REQUIRED | Maybe either 'Y' for detected analytes or 'N' for non_detects. 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 (use 'N' for non_detects instead). | |
| 35 | lab_qualifiers | Text(10) | | Qualifier flags assigned by the laboratory. | |

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|----|------------------------|----------|----------|--|-----------------------------|
| 36 | validator_qualifiers | Text(10) | | Qualifier flags assigned by the validation firm. | |
| 37 | interpreted_qualifiers | Text(10) | | 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 with the 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 the interpreted_qualifier, please use the qualifier in the Valid Value in A-10 with the description that can closely match with the lab qualifier. EPAR region 2 is not going to add any more qualifiers. | Table A-10 |
| 38 | validated_yn | Text(1) | REQUIRED | Indicates if the result has been validated. | Y= “Yes” N= “No” |

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| 39 | method_detection_limit | Text(20) | | <p>Lowest concentration that can be detected by an instrument with correction for the effects of sample matrix and method-specific parameters such as sample preparation.</p> <p>MDLs are explicitly determined as set forth in 40 CFR Part 136. They are defined as three times the standard deviation of replicate spiked analyses. This represents 99% confidence that the analyte concentration is greater than zero. The organic methods in the EPA 500 series, EPA 600 series, and Standard Methods all give typical MDLs for clean water samples. Generally these clean-water MDLs (corrected for %moisture, sample size, and dilution) are used for reporting limits, but the laboratory may use MDLs that they have generated. MDLs generated by the laboratory using the sample matrix of interest are the most reliable. If the clean-water MDLs are used, remember that they do not include all of the upward correction necessary to account for the effects of sample matrix. This is important to remember especially for risk assessments and highly contaminated samples.</p> | |
| 40 | reporting_detection_limit | Numeric | | <p>Concentration level above which results can be quantified with confidence. It must reflect conditions such as dilution factors and moisture content.</p> <p>Required for all results for which such a limit is appropriate. The reporting_detection_limit column must be reported as the sample specific detection limit.</p> | |

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|----|-------------------------|-----------|--|--|--|
| 41 | quantitation_limit | Text(20) | | 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. | |
| 42 | result_unit | Text(15) | | Units of measurement for the result. Controlled vocabulary, see Units valid value table in the appendix. | |
| 43 | detection_limit_unit | Text(15) | | Units of measurement for the detection limit(s). Controlled vocabulary, see Units valid value table in the appendix. This field is required if a reporting_detection_limit is reported. | |
| 44 | tic_retention_time | Text(8) | | Report as null. | |
| 45 | minimum_detectable_conc | Numeric | | Minimum detectable concentration or activity. This value should be in the same units as the result_value. | |
| 46 | counting_error | Numeric | | Counting error as reported by the laboratory. This value should be in the same units as the result_value. | |
| 47 | uncertainty | Text(10) | | The uncertainty of the counting error, valid values include "1 sigma" or "2 sigma" This field is required if the counting_error field is populated. | |
| 48 | critical_value | Numeric | | Critical value as reported by the laboratory. | |
| 49 | validation_level | Text(20) | | EPA defined validation level | |
| 50 | result_comment | Text(255) | | Result specific comments. | |
| 51 | qc_original_conc | Numeric | | 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). | |

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|----|-----------------------|---------|--|---|--|
| 52 | qc_spike_added | Numeric | | 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). | |
| 53 | qc_spike_measured | Numeric | | 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). | |
| 54 | qc_spike_recovery | Numeric | | 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"). | |
| 55 | qc_dup_original_conc | Numeric | | 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). | |
| 56 | qc_dup_spike_added | Numeric | | 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. | |
| 57 | qc_dup_spike_measured | Numeric | | 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. | |

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|----|-----------------------|----------|--|--|--|
| 58 | qc_dup_spike_recovery | Numeric | | 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"). | |
| 59 | qc_rpd | Text(8) | | 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"). | |
| 60 | qc_spike_lcl | Text(8) | | 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"). | |
| 61 | qc_spike_ucl | Text(8) | | 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 "60%" as "60"). | |
| 62 | qc_rpd_cl | Text(8) | | Relative percent difference control limit. Required for any duplicated sample. Report as percentage multiplied by 100 (e.g., report "25%" as "25"). | |
| 63 | qc_spike_status | Text(10) | | 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. | |
| 64 | qc_dup_spike_statuses | Text(10) | | 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. | |

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| 65 | qc_rpd_status | Text(10) | | 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. | |
| 66 | lab_SDG | Text(20) | | Lab Sample Delivery Group (SDG) identifier. A single sample may be assigned to multiple Sample Delivery Group (SDG) based on different analysis. | |

6.6 Vapor Intrusion Batch EDD File

Each Vapor Intrusion Batch file must be named according to the following convention:

SiteNameDate.EPAIDCode.VI_Batches_v3.txt (or .csv)

Table 6-6 Vapor Intrusion Batches file data structure

| Pos# | Column Name | Data Type | Required | Description | Valid Values In Appendix |
|------|---------------------|-----------|----------|---|--------------------------|
| 1 | sys_sample_code | Text(40) | REQUIRED | Unique sample identifier. Each sample must have a unique value, including spikes and duplicates. Laboratory QC samples must also have unique identifiers. The laboratory and the EQUIS® Chemistry user have considerable flexibility in the methods they use to derive and assign unique sample identifiers, but uniqueness throughout the database is the only restriction enforced by EquIS® Chemistry. | |
| 2 | lab_anl_method_name | Text(35) | REQUIRED | Laboratory analytical method name or description. A controlled vocabulary column, valid values can be found in the appendix in table ab_anl_method_name. | Table A-16 |
| 3 | analysis_date | DateTime | REQUIRED | Date and time of sample analysis in 'MM/DD/YYYY HH:MM:SS' format. May refer to either beginning or end of the analysis as required by EPA. | |
| 4 | total_or_dissolved | Text(1) | REQUIRED | Must be either 'D' for dissolved or filtered [metal] concentration, or 'T' for everything else | |
| 5 | column_number | Text(2) | REQUIRED | Column number, if null, "NA" will be placed in this field | |

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|---|-----------------|----------|----------|--|-------------------|
| 6 | test_type | Text(10) | REQUIRED | Type of test. Valid values include 'Initial', 'Reextract1', 'Reextract2', 'Reextract3', 'Reanalysis', 'Dilution1', 'Dilution2', and 'Dilution3'. | Table A-25 |
| 7 | test_batch_type | Text(10) | REQUIRED | Lab batch type. Valid values include 'Prep', 'Analysis', and 'Leach'. This is a required field for all batches. | Table A-26 |
| 8 | test_batch_id | Text(20) | | Unique identifier for all lab batches. | |

7. TECHNICAL SUPPORT

EPA Region 2 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.