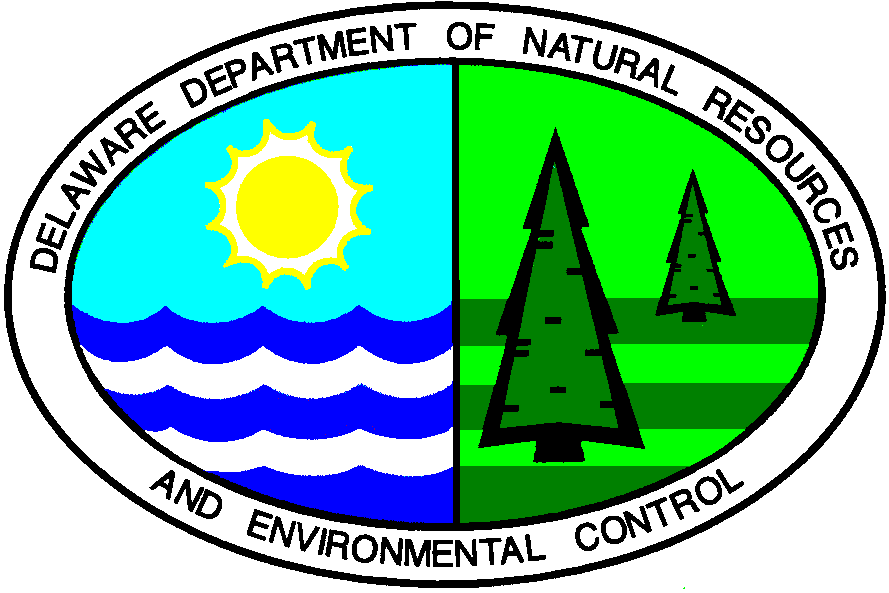
**DNREC EQuIS Electronic Data Deliverable Submittal Requirements Manual**



**State of Delaware**

**Department of Natural Resources and Environmental Control**

**Division of Waste and Hazardous Substances**

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**Table of Contents**

[1. Introduction 9](#_Toc63325181)

[2. General Reporting Requirements 9](#_Toc63325182)

[2.1 DNREC’s EDD Format 9](#_Toc63325183)

[2.2 Prior to Submitting EDD Files to DNREC 10](#_Toc63325184)

[2.3 Submitting EDD Files to DNREC 11](#_Toc63325185)

[2.3.1 General 11](#_Toc63325186)

[2.3.2 Consultants as Data Providers 11](#_Toc63325187)

[2.3.3 Laboratories as Data Providers 11](#_Toc63325188)

[2.4 Overall DNREC EQuIS Database Organization 12](#_Toc63325189)

[2.5 Creating EDD Files/Worksheets 13](#_Toc63325190)

[2.5.1 Required Fields 13](#_Toc63325191)

[2.5.2 Fields with Controlled Vocabulary / Lookup Fields 14](#_Toc63325192)

[2.5.3 Specific Reporting Requirements 14](#_Toc63325193)

[2.5.4 Checking Data Integrity 16](#_Toc63325194)

[2.6 Naming and Saving EDDs 17](#_Toc63325195)

[2.6.1 Excel Workbook/Worksheets 17](#_Toc63325196)

[2.6.2 Access Database/Tables 17](#_Toc63325197)

[2.6.3 Tab Delimited Files 17](#_Toc63325198)

[2.6.4 Comma Delimited Files 18](#_Toc63325199)

[2.6.5 Zip Files 18](#_Toc63325200)

[2.7 Checking EDD Files with the EQuIS Data Processor 18](#_Toc63325201)

[2.7.1 Latest DNREC Format Files and Reference Value File 19](#_Toc63325202)

[2.7.2 Modifying Comment Indicator 19](#_Toc63325203)

[2.8 Adding New Reference Values 19](#_Toc63325204)

[2.9 Submitting an EDD 19](#_Toc63325205)

[3. Initial EDD Files 21](#_Toc63325206)

[3.1 Description of Initial EDD Files 21](#_Toc63325207)

[3.1.1 Data Provider EDD 21](#_Toc63325208)

[3.1.2 Subfacility EDD 21](#_Toc63325209)

[3.1.3 Location EDD 21](#_Toc63325210)

[3.1.4 Files EDD 22](#_Toc63325211)

[3.1 Examples of Initial EDD Files 23](#_Toc63325212)

[3.2.1 Data Provider EDD 23](#_Toc63325213)

[3.2.2 Subfacility EDD 23](#_Toc63325214)

[3.2.3 Location EDD 24](#_Toc63325215)

[3.2.4 Files EDD 24](#_Toc63325216)

[4. Subsurface Investigation EDD Files 25](#_Toc63325217)

[4.1 Description of Subsurface Investigation EDD Files 25](#_Toc63325218)

[4.1.1 Drill Activity EDD 25](#_Toc63325219)

[4.1.2 Downhole Point EDD 25](#_Toc63325220)

[4.1.3 Lithology EDD 25](#_Toc63325221)

[4.1.4 Well EDD 25](#_Toc63325222)

[4.1.5 Well Construction EDD 25](#_Toc63325223)

[4.1.6 Geology Samples EDD 25](#_Toc63325224)

[4.1.7 Water Table EDD 26](#_Toc63325225)

[4.2 Examples of Subsurface Investigation EDD Files 27](#_Toc63325226)

[4.2.1 Drill Activity EDD 27](#_Toc63325227)

[4.2.2 Downhole Point EDD 27](#_Toc63325228)

[4.2.3 Lithology EDD 27](#_Toc63325229)

[4.2.4 Well EDD 28](#_Toc63325230)

[4.2.5 Well Construction EDD 28](#_Toc63325231)

[4.2.6 Geology Samples EDD 29](#_Toc63325232)

[4.2.7 Water Table EDD 29](#_Toc63325233)

[5.0 Field Activities EDD Files 30](#_Toc63325234)

[5.1 Description of Field Activities EDD Files 30](#_Toc63325235)

[5.1.1 Water Level EDD 30](#_Toc63325236)

[5.1.2 Extraction Injection Wells EDD 30](#_Toc63325237)

[5.1.3 Soil Gas EDD 30](#_Toc63325238)

[5.1.4 Field Results EDD 30](#_Toc63325239)

[5.1.5 DNREC Screening Results EDD 30](#_Toc63325240)

[5.2 Examples of Field Activities EDD Files 31](#_Toc63325241)

[5.2.1 Water Level EDD 31](#_Toc63325242)

[5.2.2 Extraction Injection Wells EDD 31](#_Toc63325243)

[5.2.3 Soil Gas EDD 31](#_Toc63325244)

[5.2.4 Field Results EDD 32](#_Toc63325245)

[5.2.5 DNREC Screening Results EDD 33](#_Toc63325246)

[6. Chemistry EDD Files 34](#_Toc63325247)

[6.1 Description of Chemistry EDD Files 34](#_Toc63325248)

[6.1.1 Sample EDD 34](#_Toc63325249)

[6.1.2 Test Result QC EDD 35](#_Toc63325250)

[6.1.3 Batch EDD 35](#_Toc63325251)

[6.1.4 Sample Parameter EDD 35](#_Toc63325252)

[6.2 Examples of Chemistry EDD Files 36](#_Toc63325253)

[6.2.1 Sample EDD 36](#_Toc63325254)

[6.2.2 Test Result QC EDD 37](#_Toc63325255)

[6.2.3 Batch EDD 38](#_Toc63325256)

[6.2.4 Sample Parameter EDD 39](#_Toc63325257)

[7. Basic Historical EDD Files 40](#_Toc63325258)

[7.1 Description of Basic Historical EDD Files 40](#_Toc63325259)

[7.1.1 Basic Locations EDD 40](#_Toc63325260)

[7.1.2 Basic Water Level EDD 40](#_Toc63325261)

[7.1.3 Basic Chemistry EDD 40](#_Toc63325262)

[7.1.4 Basic Geology EDD 40](#_Toc63325263)

[7.2 Examples of Basic Historical EDD Files 41](#_Toc63325264)

[7.2.1 Basic Locations EDD 41](#_Toc63325265)

[7.2.2 Basic Water Level EDD 41](#_Toc63325266)

[7.2.3 Basic Chemistry EDD 41](#_Toc63325267)

[7.2.4 Basic Geology EDD 42](#_Toc63325268)

[8. Vapor Intrusion 43](#_Toc63325269)



# Introduction

The Delaware Department of Natural Resources and Environmental Control (DNREC) is using the Environmental Quality Information System (EQuIS) database, developed by EarthSoft, Inc., to help manage the environmental data they obtain. The EQuIS database will facilitate improved analysis of data by DNREC and allow DNREC to capture a large amount of data over time. The environmental data is uploaded into the database via Electronic Data Deliverables (EDDs). This manual will assist data providers with preparing and submitting EDDs.

EDDs are a collection of files (or worksheets) which are used to report data electronically and in a specific format. For example, in DNREC’s EDD format, a file is used to report location data, another file is used to report samples collected at a location, and another file is used to report the laboratory test results for the samples. By using EDDs, the need to report the same data over and over again is eliminated. For instance, once the location data is reported for a particular facility, that same location data does not need to be resubmitted when additional samples are collected.

EDDs may be created with various software applications including spreadsheets (i.e. Excel), databases (i.e. Access), and text editors (i.e. Notepad).

This manual provides examples of EDD files as well as other essential information to prepare and submit EDD files. The workflow for submitting EDD files to DNREC is shown in Figure 1 below. Data providers must follow the instructions within this manual to avoid errors with uploading EDDs into the database.

DNREC’s EQuIS EDD Submittal Webpage (<https://dnrec.alpha.delaware.gov/waste-hazardous/equis/>) provides links to the tools necessary to complete and submit EDDs. One important tool is the free software program, the EQuIS Data Processor (EDP). EDP must be used to check EDDs for errors prior to submittal to DNREC. An EDP user guide is available on the website as well.

# General Reporting Requirements

## DNREC’s EDD Format

DNREC has a customized EDD format that is based on the EDD format of surrounding EPA regions and states. This EDD is meant for loading historical, current, and future data into DNREC’s database. DNREC’s EDD format consists of these files: DNREC.xse, DNREC.vbe, DNREC-enum.xsd, and DNREC-export.xme.

The DNREC EDD format is divided into 32 sections which are organized in the following groupings: Initial, Subsurface Investigations, Field Activities, Chemistry, and Basic Historical. Below is an overview of the sections that comprise DNREC’s EDD format:

**Initial**

Data Provider

Subfacility

Location

Files

**Subsurface Investigation**

Drill Activity

Downhole Point

Lithology

Well

Well Construction

Geology Samples

Water Table

**Field Activities**

Water Level

Extraction

Injection Wells Soil Gas

Field Results

DNREC Screening Results

**Chemistry**

Sample

Sample Parameter

Test ResultQC

Batch

**Basic Historical**

Basic Locations

Basic Water Level

Basic Chemistry

Basic Geology

**Vapor Intrusion**

VI Building Address

VI Building Inspection

VI Building Parameters

VI Locations  
VI Outdoor Locations

VI Sample TestResultsQC

VI Batch

The contents of DNREC’s EDD format may be viewed by loading DNREC’s Format File (DNREC.xse, DNREC.vbe, DNREC-enum.xsd, and DNREC-export.xme) and Reference Value File (DNREC.rvf) into the EQuIS Data Processor. The EQuIS Data Processor (EDP) is available for download online at no cost to DNREC data providers. The [EQuIS Data Processor (EDP) User Guide](https://earthsoft.com/products/edp/edp-format-for-dnrec/) provides further information about how to install and use EDP and how to register the DNREC Format File and Reference Value File.

## Prior to Submitting EDD Files to DNREC

Before submitting EDD files, it is important that data providers contact the DNREC-SIRS project officer assigned to the site first (and prior to sampling) to determine what site data should be submitted via EDDs. Then, the SIRS project officer and/or the data provider must provide some basic site/facility information directly to the DNREC EQuIS database management team via e[mail at DNREC\_EQuIS@state.de.us.](mailto:DNREC_EQuIS@state.de.us) This information should include the following:

* + - * Facility Name
      * Facility ID #
      * DNREC Project Officer Name
      * Data Provider Name (consultant company name & primary contact person for EDDs)
      * Facility Address (street, city, zip code, county)
      * Program: Brownfield, DOD, HSCA, LAST, LUST, NPL, PA/SI, RCRA CA, Resource Recovery, Solid Waste, SSA, or VCP

The DNREC EQuIS database management team will create the new Facility in the database and then the data provider can begin to submit EDD files. If the facility already exists in the DNREC EQuIS database and the basic facility information has not changed, then the SIRS project officer and/or data provider do not need to provide this information to the DNREC EQuIS database management team.

## Submitting EDD Files to DNREC

### 2.3.1 General

At minimum, DNREC requires EDD files containing the following sections to be submitted for each facility in the database:

* + - * **Location**: identifies the sampling locations at the facility and their coordinates.
      * **Lithology**: contains lithological data collected from soil samples or drill cuttings generated during drilling of borings.
      * **Sample**: contains data for the samples collected at the site and sent to a fixed lab for analysis. Fields include sample date, location, type, matrix, source, start and end depths, etc.
      * **TestResultQC**: contains data regarding the laboratory tests performed on samples, the results of those tests, and the associated quality control data.
      * **Batch**: contains data associating samples with the laboratory batch identifier.

If wells were installed and/or sampled at the facility, EDD files containing the following sections are also required:

* + - * **Well**: contains data regarding wells at the facility including installation date, well permit number, top of casing elevation, depth of well, and stickup height.
      * **WaterLevel**: contains data regarding water level measurements collected during sampling activities including water level depth and water level elevation.

If there is any air data, it should be populated in the new “Vapor Intrusion” section of the DNREC EDD.

EDD files for additional sections may be populated and submitted if approved by the DNREC-SIRS project officer. Note: Certain EDD files (i.e. Location, Well) may only need to be submitted once for a facility. Whereas other EDD files (i.e. Sample, TestResultQC, and WaterLevel) may need to be submitted periodically as new data is generated through subsequent sampling events.

### 2.3.2 Consultants as Data Providers

Consultants are responsible for the submittal of field and lab data from any subcontractors that are providing data collection, laboratory or validation services. Consultants should submit both lab and field EDD files to DNREC via e[mail at DNREC\_EQuIS@state.de.us.](mailto:DNREC_EQuIS@state.de.us) Consultants must check the lab and field EDDs together in EDP before submitting them to DNREC. Please contact the lab in advance of sampling to let them know you will require EDDs in the DNREC format and ensure they have the latest DNREC format and reference value file, available through the DNREC EQuIS website.

### 2.3.3 Laboratories as Data Providers

Labs contracted by a consultant should submit lab EDD files to the consultant and not to DNREC directly.

Labs contracted by DNREC should submit lab EDD files via e[mail to DNREC\_EQuIS@state.de.us](mailto:DNREC_EQuIS@state.de.us) (or as agreed). Along with the EDD files, email submittals must include the facility name, facility code (DE#), and person to contact regarding the EDD.

## Overall DNREC EQuIS Database Organization

Understanding the basic hierarchy of organization of the DNREC EQuIS database may assist data providers in understanding how the DNREC EDD format functions.

DNREC’s EQuIS database is a relational database. In the example below, each row represents a table in the database. In this case, each table except the ‘Result’ table is a parent to the table below. This means that each row in the parent table can have one or more child rows in the table below it. Reading down, a facility may have one or more subfacilities, a subfacility may have one or more locations, a location may have one or more samples, a sample may have one or more tests, a test may have one or more results. Conversely, a row in a child table can have only one parent in its associated parent table. Reading up the hierarchy, an individual result must have only one test, an individual test can be associated with only one sample, a sample can be assigned to only one location, a location can only belong to one subfacility and a subfacility can only be associated with one facility.

The relations described above are also true of the way the worksheets in the EDD format work together. Therefore, if you have laboratory data, each sample will have one location and can have multiple tests with multiple results. If you miss the parent data of an existing child, the EDP will display an error. For example, if you have sample and result data filled in but no test information, EDP will show an error.

Example:

**Facility** (Old Gas Station A (DE-XXXX))

**Subfacility** (OU-1…operable unit 1)

**Location** (GSMW-01)

**Sample** (GSSO-01D…deep soil sample)

**Test** (SW8260 = volatile organic compounds by GC/MS)

**Result** (Benzene = 10 mg/kg)

**What is a facility?**

According to EarthSoft, “A facility is the physical or logical extent of data that is made available for reporting or modeling” and it "...may correspond to physical boundaries within which investigation or remediation is being conducted". The DNREC EQuIS database consists of numerous facilities. “Facility” and “site” may be used interchangeably. Each facility is assigned a facility\_code.

**What is a Facility\_Code?**

A facility\_code is the DNREC ID for the site. For example: DE-0321. The facility\_code is used to identify the site in the database. Please contact the DNREC project officer assigned to the site if you are unsure of the facility\_code.

## Creating EDD Files/Worksheets

Data providers can add data directly to DNREC’s **Blank EDD**. The **Blank EDD** is a convenient tool for creating EDDs using an Excel Workbook Template. It is available on EarthSoft’s DNREC Format and EDP Download Page: <https://earthsoft.com/products/edp/edp-format-for-dnrec/> as well as in EDP when the DNREC format file is loaded.

The sections of the DNREC format are described in general terms in Sections 3 through 7 of this manual. The fields within each individual section (i.e. sys\_sample\_code, sys\_loc\_code) are described in the **EDD Description** Excel Workbook and Appendix A of this manual. The **EDD Description** is available on [EarthSoft’s DNREC Format and EDP Download Page](https://earthsoft.com/products/edp/edp-format-for-dnrec/) as well as in EDP when the DNREC format file is loaded. Data providers must refer to the **EDD Description** for a full description of the field, field data type and length, whether the field is required, and whether the field is restricted by a reference table or enumeration file and must be populated by a valid value.

DNREC strongly encourages data providers to use the **Blank EDD** to create EDDs; however data providers may also use the **Blank EDD** and **EDD Description** as a guide to create custom database tables or custom text files.

Acceptable files include:

1. Excel workbook (.xls or .xlsx)
2. Access database (.mdb or .accdb)
3. Individual Tab delimited file (.txt)
4. Individual Comma delimited file (.csv) (aka Comma separated file)
5. Zip file (.zip) with individual files included

### 2.5.1 Required Fields

Data providers must populate all *required* fields in the EDD sections which are submitted to DNREC. In general, **Red** fields are required fields and must be populated. **Red and Underlined** fields are required and are primary key fields, meaning they must be unique in the database. Required fields are also distinguished in the *DNREC EDD Description* file. Although required fields must be populated, DNREC encourages data providers to populate non-required fields as well when relevant information is available.

### 2.5.2 Fields with Controlled Vocabulary / Lookup Fields

Specific fields have controlled vocabulary and must be populated in compliance with DNREC reference and/or enumerated values. Data providers must look to the appropriate reference table or section of the enumeration file (DNREC-enum.xsd) to determine what values are valid for the field. Note: In EDP, a drop-down list of these valid values is available for each field.

#### 2.5.2.1 **Reference Values**

**Reference value** fields must be populated with values from a designated reference table and by default they are **blue**. Reference values (aka valid values or lookups) may be viewed by reference table under the “Reference Values” tab in EDP when the DNREC.rvf file is loaded. DNREC reference values are also located in an Excel document on DNREC’s EQuIS webpage. To determine what reference table is associated with a specific field, data providers may hover over the blue field header in EDP or they may view the Lookup column of the EDD Description Tool in EDP.

*Example:*

*Field Name=* ***Sample\_type\_code*** *(in Sample)*

*Reference Table= rt\_sample\_type*

*Reference Values= N (Normal Sample), FD (Field Duplicate), FB (Field Blank), etc.*

#### 2.5.2.2 Enumerated Values

The enumeration file (.enum) of the DNREC EDD format allows EDP to enforce a set of lookup values similar to a reference table lookup. These enumerated values may be viewed in the DNREC-enum.xsd file. The Lookup column of the EDD Description Tool highlights the appropriate section of the .enum file to reference for a specific field.

### 2.5.3 Specific Reporting Requirements

This section provides additional guidance and emphasis on how to report specific types of data including null values, re-tests, non-detects, tentatively identified compounds (TICs), qualifiers, and co-eluting congeners.

#### 2.5.3.1 Null Values

If a field is not required and contains no information (a null field), it cannot be removed from the EDD; instead, it must remain blank.

#### 2.5.3.2 Re-Tests

For initial tests, all analytes should be reported. In the case where retests are performed on a sample (i.e. Dilution1, Dilution2, Reextract1, etc.), the result that is considered the reportable result should indicate “Yes” in the reportable\_result field. The initial test, and any retest result not considered reportable should have reportable\_result set to “No”.

See the example in the table below.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Test\_type** | **Cas\_rn** | **Chemical\_name** | **Result\_value** | **Reportable\_result** | **Detect\_flag** | **Lab\_qualifiers** | **Result\_comment** |
| Initial | 79-01-6 | Trichloroethene | 2000 | No | Y | E | Too  concentrated |
| Dilution1 | 79-01-6 | Trichloroethene | 500 | Yes | Y |  |  |

#### 2.5.3.3 Non-Detects

When reporting non-detects in the EDD files, the result\_value field must be null, the detect\_flag field must be ‘N’, and the reporting\_detection\_limit and reporting\_detection\_limit\_unit fields must be populated. The laboratory should assign a qualifier of ‘U’ to the result in the lab\_qualifier field and interpreted\_qualifier field. Even though the result may be non-detect, it is still considered a reportable\_result to DNREC; therefore reportable\_result should be ‘Yes’.

Alternatively, if a result is detected and the detect\_flag = ‘Y’, then the result\_value field must be populated. See the example in the table below.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Cas\_rn** | **Result\_value** | **Reportable\_result** | **Detect\_flag** | **Reporting\_detection**  **\_limit** | **Detection\_limit**  **\_unit** | **Lab\_qualifier** |
| 7440-38-2 | 11 | Yes | Y | 2.2 | mg/kg |  |
| 7440-38-2 |  | Yes | N | 2.2 | mg/kg | U |

#### 2.5.3.4 Tentatively Identified Compounds (TICs)

Tentatively Identified Compounds (TICs) should be reported in the EDD when detected. However, DNREC only requires that TICs with the top 10 highest concentrations are reported and that any TIC with a concentration greater than or equal to 10,000 ppb is reported. The TICs should first be identified to the analyte name if possible and then to the class of the TIC (i.e. Unknown PAHs). If the TIC cannot be identified by analyte name or class, it should be identified as “Unknown”. All TIC results should have “TIC” in the result\_type\_code field and TIC retention time in the tic\_retention\_time field of the Test Result QC EDD file. The table below provides examples of naming for unknown TICs.

|  |  |
| --- | --- |
| **Cas\_rn** | **Chemical\_name** |
| UNKNOWN1 | UNKNOWN with highest conc. |
| UNKALCOHOL2 | UNKNOWN ALCOHOLS with 2nd highest conc. |
| UNKALKALDHYDE1 | UNKNOWN ALKYL ALDEHYDES with highest conc. |
| UNKALKKEYTONE1 | UNKNOWN ALKYL KEYTONES with highest conc. |
| UNKAROMATIC10 | UNKNOWN AROMATICS with 10th highest conc. |
| UNKCARBACID4 | UNKNOWN CARBOXCYLIC ACID with 4th highest conc. |
| UNKHYDROCARB1 | UNKNOWN HYDROCARBONS with highest conc. |
| UNKPAH1 | UNKNOWN PAHS with highest conc. |
| UNKSV5 | UNKNOWN Semi-Volatile with 5th highest conc. |
| UNKVOA8 | UNKNOWN VOA with 8th highest conc. |

#### 2.5.3.5 Qualifiers

Data providers must refer to the codes and definitions within DNREC’s reference table for qualifiers (rt\_qualifier) when submitting results with qualifiers. For the interpreted qualifier field, the data provider should select the code that best matches the definition of the lab qualifier used to qualify the results. If an equivalent qualifier is not listed in rt\_qualifier, then a ‘Z’ qualifier should be populated in the interpreted qualifier field with a subsequent note in the case narrative of the lab report.

Although not common, if data is validated by a third party, the validator’s qualifiers should be included in the validator\_qualifier field; the interpreted\_qualifier field should include the equivalent of both the lab\_qualifier and validator\_qualifier entries combined.

#### 2.5.3.6 Co-eluting Congeners

If an EDD includes co-eluting congeners, the lowest numbered congener in the co-elution should be reported with a “C” as the qualifier. The other congeners should be reported with a “CXXX” as the qualifier, where the “XXX” is the congener number for the lowest numbered congener in the co-elution. No value should be entered into the result\_value field for these congeners (designated as CXXX). The table below provides an example of how to report co-eluting congeners in an EDD.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Cas\_rn** | **Chemical**  **\_name** | **Result value** | **Detect flag** | **Lab\_qualifier** | **Interpreted**  **\_qualifier** |
| 2974-92-7 | PCB-12 | 100 | Y | C | C |
| 2974-90-5 | PCB-13 |  | N | C12 | C12 |

### 2.5.4 Checking Data Integrity

When checking data, data providers must assure valid data, row uniqueness, and row integrity. The EQuIS Data Processor (EDP) helps data providers perform these data checks.

#### 2.5.4.1 Validity

Data must be valid and must adhere to the descriptions provided in the EDD Description. Data must also adhere to the valid reference and enumeration values. For example, the sample\_type\_code field in the Sample EDD file must be populated with sample type information (i.e. normal sample, field blank, etc) designated by a code from the sample\_type reference table.

#### 2.5.4.2 Row Uniqueness

A primary key field or fields make the row/record unique. The primary key fields are identified in the EDD Description as ‘PK’. Primary key field headers are usually **red and underlined**. For a facility, no two rows can have the exact same values in the primary key field(s). For example, no two rows in the Sample EDD file can have the same sys\_sample\_code. Every sys\_sample\_code ever reported must be unique for a facility.

Certain EDD files, such as the Water Level EDD file, have *multiple* primary key fields and at least one of the primary key fields per row must have a unique value. For example, in WaterLevel, sys\_loc\_code and measurement\_date are primary key fields. If two rows had the same sys\_loc\_code (MW01) and measurement\_date (12/1/09), this would violate row uniqueness. Row uniqueness would not be violated if one row had a sys\_loc\_code of MW01 and a measurement\_date of 12/1/09 and another row had the same sys\_loc\_code of MW01 and a measurement\_date of 12/8/09. Adding the time can also make the row unique.

#### 2.5.4.3 Row Integrity

Certain rows/records within the various EDD files are related to other rows/records. For example, the Location EDD file contains the sys\_loc\_code. The sys\_loc\_code in the Location EDD file must be included in the Sample EDD file, therefore linking the normal environmental sample information to the location information. Without a location, the sample data cannot be loaded.

## Naming and Saving EDDs

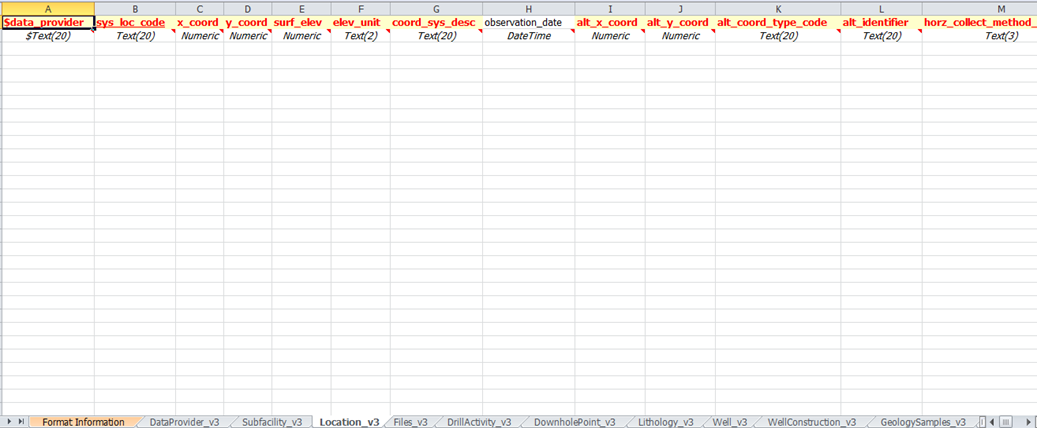
This section provides guidance for naming and saving EDDs. Please see the EDP User Guide for more information regarding naming files.

### 2.6.1 Excel Workbook/Worksheets

Once populated with data, the Excel workbook (.xls, .xlsx) can be saved with any name; however the individual worksheets in the workbook must be named exactly as the DNREC format section is named (e.g. Location, Well, etc). If a worksheet does not contain the **exact** (spelling counts) name of a section of the DNREC format, then the worksheet will not be loaded into EDP.

It is recommended that the date and facility ID are included in the file name of the Excel workbook.

Note: When populating Excel worksheets, if you find it helpful you may hide (but do *not* delete) the columns you will not be using. The hidden columns still appear when the worksheet is loaded into EDP.

Below is a screenshot of an Excel workbook with worksheets named correctly:

### 2.6.2 Access Database/Tables

Once it is populated with data, the Access database (.mdb, accdb) can be saved with any name; however the individual tables in the database must be named exactly as the DNREC format section is named.

It is recommended that the date and facility ID are included in the file name of the Access database.

### 2.6.3 Tab Delimited Files

Tab delimited files must be named in the following way:

<*Unique ID*>.<*EDD Section Name*>.txt

Where:

<*Unique ID*> = A unique identifier such as the date or sample delivery group name

<*EDD Section Name*> = The name of the section within the EDD (i.e. Location, Lithology, TestResultQC)

The EDD Section name must be spelled exactly as it is in the DNREC EDD format. It is important that a period (.) is between each of the name elements.

**Example:** 20111205.Sample.txt

### 2.6.4 Comma Delimited Files

Comma delimited files must be named in the following way:

<*Unique ID*>.<*EDDSectionName*>.csv

Where:

<*Unique ID*> = A unique identifier such as the date or sample delivery group name

<*EDD Section Name*> = The name of the section within the EDD (i.e. Location, Lithology, TestResultQC)

The EDD Section name must be spelled exactly as it is in the DNREC EDD format. It is important that a period (.) is between each of the name elements.

**Example:** 20111205.Sample.csv

### 2.6.5 Zip Files

The zip file must be named in the following way:

<*Unique ID*>.<*Facility Code*>.<*Format Name*>.zip.

Where:

<*Unique ID*> = A unique identifier such as the date or sample delivery group name

<*Facility Code*> = The DNREC identifier for the facility (i.e. DE- 1365)

<*Format*> = DNREC

Example: 20111205.DE-1348.DNREC.zip

It is important that a period (.) is between each of the zip file name elements.

The .zip file may include .txt, .csv, .xls files, etc. Remember that any individual files within a zip file must also be named appropriately. See above Sections 2.6.1 – 2.6.4 for more information.

## Checking EDD Files with the EQuIS Data Processor

All EDD files *must* be checked for errors by data providers by loading data into the [EQuIS Data Processor](https://earthsoft.com/products/edp/edp-format-for-dnrec/) [(EDP).](http://www.earthsoft.com/wordpress/products/edp/edp-format-for-dnrec/) EDP checks EDD files for required fields, field lengths, data types, reference values, duplicate rows, range, and orphan rows. EDP also checks to ensure that data within the EDDs follow DNREC’s business rules. It enables users to identify and correct errors easily and save the changes to the EDD files. Data providers must correct any errors in their data. All EDD files must be **error-free** before they are submitted to DNREC via e- mail. Please note that the standalone EDP does not check EDD files against existing data in DNREC’s EQuIS database.

**Tip: Be sure to hit ‘Refresh All’ in EDP after uploading data.**

More details regarding EDP are provided in the [EQuIS Data Processor (EDP) User Guide](https://earthsoft.com/products/edp/edp-format-for-dnrec/) available online.

### 2.7.1 Latest DNREC Format Files and Reference Value File

To use EDP, you will need the most up-to-date DNREC format files (DNREC.xse, DNREC-enum.xsd, DNREC.vbe, DNREC-export.xme) and reference value file (DNREC.rvf), located on DNREC’s EQuIS webpage. Since these files (especially the reference value file) may be updated occasionally over time, please check the webpage for the most recent DNREC format files and reference value file before using EDP to check data: <https://dnrec.alpha.delaware.gov/waste-hazardous/equis/>. Save these files to C:\ProgramFiles\EarthSoft\EQuIS\Formats\DNREC and replace existing files.

### 2.7.2 Modifying Comment Indicator

The comment indicator instructs EDP to ignore header rows. The DNREC format uniquely uses $ (instead of the default of #) as the comment indicator in EDP. You can modify the comment indicator by navigating to the Application button in the top left portion of the EDP window, go to Options, select General, change comment indicator to $, and click OK.

## Adding New Reference Values

Please follow DNREC reference values as closely as possible when populating EDD files. However, if you need to add a new reference value to the database/reference value file, please send an email to [DNREC\_EQuIS@state.de.us](mailto:DNREC_EQuIS@state.de.us) including:

1. Your name and company name
2. Reference value you want to add
3. Name of reference table the value belongs in (i.e. rt\_analyte)
4. Brief description of the reference value (i.e. for analytic methods)
5. Error Log as attachment (optional)

Once the reference value is approved and added to the database, an updated DNREC.rvf will be available. When the datasets are checked using this updated file, the errors associated with this reference value will be eliminated.

## Submitting an EDD

Once the EDD is free of errors, please submit it to DNREC via email at DNREC\_EQuIS@delaware.gov. The subject line of the email should include the name of the facility, facility code (i.e. DE #), and whether it is an original submittal or a corrected submittal of an EDD. Please cc the DNREC Project Officer assigned to the facility on the submittal email.

If the submittal is accepted, the data provider and the DNREC project officer will receive an acceptance email. If there is a problem with the submittal, the data provider will receive an email with a list of errors to correct. When you resubmit the EDD, the title and body of the email should state that it is a corrected submittal.

At this time, the ‘Sign and Submit’ feature of EDP **should not** be used by DNREC data providers.

# Initial EDD Files

The DNREC format is divided into 32 sections which are organized in the following groupings: Initial, Subsurface Investigation, Field Activities, Chemistry, Basic Historical, and Vapor Intrusion This portion of the manual briefly describes and provides examples of the Initial EDD files. Please refer to the EDD Description Tool (in EDP) for a full description of the fields within each file, field data type and length, whether the field is required, and whether the field is restricted by a reference table or enumeration file and must be populated by a valid value.

Initial EDD files are usually created by Consultants (as data providers). Not all Initial EDD files must be submitted. See Section 2.3.1 for the EDD files that DNREC requires for each facility in the database. However, all required fields within an EDD file must be populated.

## Description of Initial EDD Files

### 3.1.1 Data Provider EDD

The data provider EDD file includes information about the company or agency submitting the EDD. This file is for first time data providers or for existing data providers who need to update their information in the database. If a data provider is already listed as a valid value in the rt\_company section of the reference values, this EDD file does not need to be filled in.

### 3.1.2 Subfacility EDD

Facilities may be organized into subfacilities. The subfacility EDD file includes the subfacility code, name, type, etc. The subfacility code is a code indicating the subfacility operable unit (OU) or area of concern for which the data is collected. Use the code ‘OU1’ unless there are additional operable units at a facility. In the case of additional operable units, use codes of ‘OU2’, ‘OU3’, etc. The subfacility name is the name of the operable unit and is site-specific. The subfacility type is also site-specific but values must be selected from a reference table.

### 3.1.3 Location EDD

**The location EDD file is critical and must be submitted prior to or in conjunction with all other EDD files.** This EDD file identifies the unique sampling locations at the facility and their coordinates. Please note that DNREC requires that the X (Easting) and Y (Northing) coordinates are submitted in the **Delaware State Plane** coordinate system based on the **North American Datum of 1983 in meters** in accordance with [6 Del.](http://delcode.delaware.gov/title6/c055/index.shtml) [C., Chapter 55, Plane Coordinate System.](http://delcode.delaware.gov/title6/c055/index.shtml) If the X and Y coordinates are in other units, they must be converted prior to EDD submission. The law states that “the unit used to convert feet to meters shall be the United States survey foot, which is 39.37 / 12 feet for each meter”.

While the data provider must populate the location EDD file with X and Y coordinates in the primary coordinate system mentioned above, the alternate coordinate system fields are automatically populated by EDP with the DNREC EDD format file. Upon uploading a location EDD file to EDP, the X and Y coordinates in Delaware State Plane NAD 83 meters are automatically converted to Latitude and Longitude in decimal degrees (the alternate coordinate system) and EDP automatically populate the fields alt\_x\_coord and alt\_y\_coord.

Vertical measurements (i.e. elevation, depth) may be submitted in either feet or meters. However, the unit must be specified and should be consistent for the entire facility.

In the location EDD file, records should *not* be created for samples which are not linked to a location, such as field blanks and trip blanks. If there are “nested” wells in the same borehole, each well must be given a unique sys\_loc\_code for the facility (i.e. MW-01S, MW-01M, MW-01D).

Data providers only need to submit sampling location information once. However, if a location’s coordinates are updated, data providers may submit the updated information.

### 3.1.4 Files EDD

The files EDD contains supplementary file information, such as base map metadata. File name and file type are required fields. An example file to be submitted would be the base map of a site. File types may include image, GIS, CAD, etc.

## **Examples of Initial EDD Files**

Note: Some fields have been omitted due to space considerations.

### 3.2.1 Data Provider EDD

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **$data\_provider\_code** | **data\_provider** | **data\_contact\_name** | **data\_contact\_address1** | data\_contact\_address2 | **data\_contact\_city** |
| *$Text(20)* | *Text(70)* | *Text(50)* | *Text(40)* | *Text(40)* | *Text(30)* |
| ABC | ABC Consulting | John Smith | 123 Main Street |  | Wilmington |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **data\_contact\_state** | **data\_contact\_zipcode** | data\_contact\_country | **data\_contact\_phone** | **data\_contact\_email** |
| *Text(2)* | *Text(30)* | *Text(50)* | *Text(20)* | *Text(100)* |
| DE | 19808 | USA | 302-395-2600 | [jsmith@email.com](mailto:jsmith@email.com) |

### 3.2.2 Subfacility EDD

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **$Subfacility\_code** | **subfacility\_type** | **subfacility\_name** | **subfacility\_task\_code** | subfacility\_desc1 | Additional Fields |
| *$Text(20)* | *Text(20)* | *Text(60)* | *Text(40)* | *Text(2000)* |
| OU1 | Landfill | LF10 | RIFS | landfill number 10 at golf course |
| OU2 | Fire training area | FT03 | RIFS | fire training area number 3 in northwest portion of site |

### 3.2.3 Location EDD

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **$data\_provider** | **sys\_loc\_code** | **x\_coord** | **y\_coord** | **surf\_elev** | **elev\_unit** | **coord\_sys\_desc** | observation\_date |
| *$Text(20)* | *Text(20)* | *Numeric* | *Numeric* | *Numeric* | *Text(2)* | *Text(20)* | *DateTime* |
| ABC Consulting | MW-001 | 210000.00 | 65000.00 | 24.03 | ft | SP NAD 83 DE 0700 | 5/7/2014 |
| ABC Consulting | MW-002 | 210200.00 | 65020.00 | 21.87 | ft | SP NAD 83 DE 0700 | 5/7/2014 |
| ABC Consulting | SB-005 | 210250.00 | 65025.00 | 22.10 | ft | SP NAD 83 DE 0700 | 5/1/2014 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **alt\_x\_coord** | **alt\_y\_coord** | **alt\_coord\_type\_code** | **alt\_identifier** | **horz\_collect\_method\_code** | **horz\_accuracy\_value** | **horz\_accuracy\_unit** |
| *Numeric* | *Numeric* | *Text(20)* | *Text(20)* | *Text(3)* | *Text(20)* | *Text(15)* |
| 38.5855215 | -75.3018945 | Lat Long | Primary | S1 | 0.1 | ft |
| 38.5856994 | -75.2995987 | Lat Long | Primary | S1 | 0.1 | ft |
| 38.5857439 | -75.2990248 | Lat Long | Primary | G3 | 10 | ft |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **horz\_datum\_code** | **elev\_collect\_method\_code** | elev\_accuracy\_value | elev\_accuracy\_unit | **elev\_datum\_code** | Additional Fields | loc\_name |
| *Text(3)* | *Text(3)* | *Text(20)* | *Text(15)* | *Text(3)* | *Text(40)* |
| 002 | S1 | 0.1 | ft | 003 | MW-001 |
| 002 | S1 | 0.1 | ft | 003 | MW-002 |
| 002 | G3 | 1 | ft | 003 | SB-005 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| loc\_desc | **loc\_type** | loc\_purpose | subfacility\_code | **within\_facility\_yn** | **loc\_county\_code** | loc\_district\_code | **loc\_state\_code** | Additional Fields |
| *Text(255)* | *Text(20)* | *Text(20)* | *Text(20)* | *Text(1)* | *Text(3)* | *Text(20)* | *Text(2)* |
|  | MW |  | OU2 | Y | 003 |  | DE |
|  | MW |  | OU2 | Y | 003 |  | DE |
|  | SOILBORE |  | OU2 | Y | 003 |  | DE |

### 3.2.4 Files EDD

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **$file\_name** | **file\_type** | file\_date | title | Author | Additional Fields |
| *$Text(255)* | *Text(20)* | *DateTime* | *Text(255)* | *Text(255)* |
| SiteBaseMap.jpg | image | 4/1/2014 | Site X Base Map | ABC  Consulting |

# Subsurface Investigation EDD Files

The DNREC format is divided into 32 sections which are organized in the following groupings: Initial, Subsurface Investigation, Field Activities, Chemistry, Basic Historical, and Vapor Intrusion This portion of the manual briefly describes and provides examples of the Subsurface Investigation EDD files. Please refer to the EDD Description Tool (in EDP) for a full description of the fields within each file, field data type and length, whether the field is required, and whether the field is restricted by a reference table or enumeration file and must be populated by a valid value.

Subsurface Investigation EDD files are usually created by Consultants (as data providers). Not all Subsurface Investigation EDD files must be submitted. See Section 2.3.1 for the EDD files that DNREC requires for each facility in the database. However, all required fields within an EDD file must be populated.

## Description of Subsurface Investigation EDD Files

### 4.1.1 Drill Activity EDD

The drill activity EDD file contains data associated with drilling activities such as the drilling start and end date, drilling method, and diameter of boring.

### 4.1.2 Downhole Point EDD

The downhole point EDD file collects data related to measurements taken downhole from the sample locations. Parameters measured at these downhole points may include tip stress, resistivity, and pore pressure.

### 4.1.3 Lithology EDD

The lithology EDD file contains lithology data for soil borings including the start/end depth, material, degree of moisture, color, etc. in each lithological layer.

### 4.1.4 Well EDD

The well EDD file contains data regarding wells at the facility including installation date, well permit number, top of casing elevation, depth of well, and stickup height.

Well permit numbers are especially important and should be included in this EDD file to comply with the [Policy for Correlating Well Sampling Results to DNREC Well ID Numbers](http://www.awm.delaware.gov/SIRB/Documents/DNREC%20Well%20ID%20Policy.pdf).

### 4.1.5 Well Construction EDD

The well construction EDD file contains data about the construction of wells installed at the facility. This file must include the start and end depth of each segment of the wells (i.e. protective casing, screen) and the material used to construct each segment (i.e. PVC, concrete).

### 4.1.6 Geology Samples EDD

The geology samples EDD file contains data regarding geotechnical samples and may include hydraulic conductivity, organic carbon content, porosity, etc.

### 4.1.7 Water Table EDD

The water table EDD file collects information related to the initial water table data such as depth of water table and aquifer at a particular location encountered during the well completion.

## **4.2 Examples of Subsurface Investigation EDD Files**

Note: Some fields have been omitted due to space considerations.

### 4.2.1 Drill Activity EDD

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **$sys\_loc\_code** | **drill\_event** | start\_depth | end\_depth | drill\_date | diameter | **diameter\_unit** | drill\_method | Additional Fields |
| *$Text(20)* | *Text(20)* | *Numeric* | *Numeric* | *DateTime* | *Numeric* | *Text(15)* | *Text(50)* |
| MW-001 | May 2014 | 0 | 24 | 5/1/2014 | 2 | in | direct push |
| MW-002 | May 2014 | 0 | 24 | 5/1/2014 | 2 | in | direct push |
| SB-005 | May 2014 | 0 | 16 | 5/1/2014 | 2 | in | direct push |

### 4.2.2 Downhole Point EDD

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **$sys\_loc\_code** | **Depth** | **param** | **param\_value** | **param\_unit** |
| *$Text(20)* | *Numeric* | *Text(20)* | *Numeric* | *Text(15)* |
| SB-005 | 12 | Tip Stress | 580 |  |
| SB-005 | 12 | Resistivity | 500 |  |

### 4.2.3 Lithology EDD

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **$sys\_loc\_code** | **start\_depth** | **end\_depth** | **material\_type** | geo\_unit\_code\_1 | geo\_unit\_code\_2 | remark1 |
| *$Text(20)* | *Numeric* | *Numeric* | *Text(40)* | *Text(20)* | *Text(20)* | *Text(255)* |
| MW-001 | 8 | 8.5 | FALLBACK | Qcl |  | Fallback |
| MW-001 | 8.5 | 10.25 | CLAYEY SAND | Qcl |  | Light tan fine-medium clayey sand, damp, firm |
| MW-001 | 10.25 | 10.58 | CLAYEY SAND | Qcl |  | Coarse clayey sand w/pebbles, firm, damp |
| MW-001 | 10.58 | 10.92 | SANDY SILT | Qcl |  | Tan sandy silt w/clay, firm, damp |
| MW-001 | 10.92 | 10.92 | NO RECOVERY | Qcl |  | No recovery |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| remark2 | moisture | permeable | consolidated\_yn | color | observation | consistency | Additional Fields | PID |
| *Text(255)* | *Text(20)* | *Text(20)* | *Text(1)* | *Text(30)* | *Text(255)* | *Text(20)* | *Numeric* |
|  |  |  |  |  |  |  | 0 |
|  | damp |  |  | light tan |  | firm | 5 |
|  | damp |  |  |  |  | firm | 1 |
|  | damp |  |  | tan |  | firm | 0 |
|  |  |  |  |  |  |  |  |

### 4.2.4 Well EDD

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **$sys\_loc\_code** | **well\_id** | Additional Fields | **top\_casing\_elev** | **datum\_value** | **datum\_unit** | **datum\_desc** | step\_or\_linear | **datum\_start\_date** |
| *$Text(20)* | *Text(30)* | *Numeric* | *Numeric* | *Text(15)* | *Text(255)* | *Text(6)* | *DateTime* |
| MW-001 | 123456 | 26.21 | 26.21 | ft | top of casing |  | 5/7/2014 |

|  |  |  |  |
| --- | --- | --- | --- |
| **datum\_collection\_method\_code** | **depth\_of\_well** | **depth\_unit** | Additional Fields |
| *Text(2)* | *Numeric* | *Text(15)* |
| S1 | 23.33 | ft |

### 4.2.5 Well Construction EDD

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **$sys\_loc\_code** | **segment\_type** | **material\_type\_code** | **start\_depth** | **end\_depth** | **depth\_unit** | Additional  Fields |
| *$Text(20)* | *Text(20)* | *Text(20)* | *Numeric* | *Numeric* | *Text(15)* |
| MW-001 | protective casing | steel stick-up | -2.18 | 1.82 | ft |
| MW-001 | surface plug | concrete | -0.1 | 0.65 | ft |
| MW-001 | annular backfill | cement grout | 0.65 | 9.05 | ft |
| MW-001 | casing | PVC SCH 40 | -1.78 | 9.05 | ft |
| MW-001 | annular seal | prepack bentonite | 9.05 | 11.55 | ft |
| MW-001 | screen | prepack screen | 11.55 | 21.55 | ft |

### 4.2.6 Geology Samples EDD

(geotechnical sample data)

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **$sys\_loc\_code** | **geo\_sample\_code** | sample\_name | **sample\_top** | **sample\_bottom** | **sample\_date** | **sample\_method** | **material\_type** | Additional Fields |
| *$Text(20)* | *Text(40)* | *Text(50)* | *Numeric* | *Numeric* | *DateTime* | *Text(30)* | *Text(40)* |
| SB-005 | SB005-2ft-4ft | SB-005-2ft-  4ft | 2 | 4 | 5/1/2014 | Hand Auger | Sand |

### 4.2.7 Water Table EDD

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **$sys\_loc\_code** | **type** | **sequence** | **depth** | flowing\_yn | measurement\_method | capped\_pressure | **capped\_pressure\_unit** |
| *$Text(20)* | *Text(20)* | *Text(20)* | *Numeric* | *Text(1)* | *Text(50)* | *Numeric* | *Text(15)* |
| MW-001 | Unconfined1 | Stabilized | 15 |  | water level probe |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| reference\_point | **reference\_elevation** | temperature | **temperature\_unit** |
| *Text(50)* | *Numeric* | *Numeric* | *Text(15)* |
| top of casing | 26.21 |  |  |

# 5.0 Field Activities EDD Files

The DNREC format is divided into 32 sections which are organized in the following groupings: Initial, Subsurface Investigation, Field Activities, Chemistry, Basic Historical, and Vapor Intrusion This portion of the manual briefly describes and provides examples of the Field Activities EDD files. Please refer to the EDD Description Tool (in EDP) for a full description of the fields within each file, field data type and length, whether the field is required, and whether the field is restricted by a reference table or enumeration file and must be populated by a valid value.

Field Activities EDD files are usually created by Consultants (as data providers). Not all Field Activities EDD files must be submitted. See Section 2.3.1 for the EDD files that DNREC requires for each facility in the database. However, all required fields within an EDD file must be populated.

## 5.1 Description of Field Activities EDD Files

### 5.1.1 Water Level EDD

The water level EDD file contains data regarding water level measurements collected during sampling activities including water level depth and water level elevation.

### 5.1.2 Extraction Injection Wells EDD

The extraction/injection wells EDD file contains data, such as pumping rates, for wells where extraction and/or injection is occurring.

### 5.1.3 Soil Gas EDD

The soil gas EDD file contains the field instrument readings collected during a soil gas sampling.

### 5.1.4 Field Results EDD

The field results EDD file contains the results from analyzing samples in the field.

### 5.1.5 DNREC Screening Results EDD

The DNREC screening results EDD file contains the sample XRF and GC/MS screening results from the Remediation lab. This EDD file should only be populated with screening data from the Remediation lab. *For more guidance on the DNREC Screening Results EDDs, please contact Remediation Lab.*

Note: Samples not analyzed by a fixed lab, and therefore not included in the Sample EDD (see Section 6.1.1), will typically be included in the DNREC Screening Results EDD file or the Field Results EDD file.

# **5.2 Examples of Field Activities EDD Files**

Note: Some fields have been omitted due to space considerations.

### 5.2.1 Water Level EDD

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **$sys\_loc\_code** | **measurement\_date** | **historical\_reference\_elev** | **water\_level\_depth** | water\_level\_elev | corrected\_depth | corrected\_elev |
| *$Text(20)* | *DateTime* | *Numeric* | *Numeric* | *Numeric* | *Numeric* | *Numeric* |
| MW-001 | 5/7/2014 | 26.21 | 15.44 | 10.77 |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| measured\_depth\_of\_well | **depth\_unit** | technician | dry\_indicator\_yn | measurement\_method | Additional Fields | **task\_code** | **reportable\_yn** |
| *Numeric* | *Text(15)* | *Text(30)* | *Text(1)* | *Text(20)* | *Text(40)* | *Text(1)* |
| 23.33 | ft |  | N | water level probe | RIFS | Y |

### 5.2.2 Extraction Injection Wells EDD

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **$sys\_loc\_code** | **start\_measure\_date** | **end\_measure\_date** | **ave\_pump\_rate** | **pump\_rate\_unit** | pct\_operating\_time |
| *$Text(20)* | *DateTime* | *DateTime* | *Numeric* | *Text(15)* | *Numeric* |
| MW-001 | 7/1/2014 | 7/10/2014 | 5 | gpd |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **operating\_mode** | **design\_rate** | **design\_rate\_unit** | rate\_measurement\_type | suction | remark |
| *Text(20)* | *Numeric* | *Text(15)* | *Text(20)* | *Numeric* | *Text(255)* |
| Injection | 10 | gpd |  |  |  |

### 5.2.3 Soil Gas EDD

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **$sys\_loc\_code** | **survey\_date** | **param\_code** | **reading\_depth** | **reading\_unit** | **reading** | **depth\_unit** | Additional Fields |
| *$Text(20)* | *DateTime* | *Text(20)* | *Text(8)* | *Text(15)* | *Text(8)* | *Text(15)* |
| SG-001 | 6/1/2014 | Sample Volume | 3 | L | 1 | ft |

### 5.2.4 Field Results EDD

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **$data\_provider** | **sys\_loc\_code** | **sys\_sample\_code** | **field\_parameter** | start\_depth | end\_depth | depth\_unit |
| *$Text(20)* | *Text(20)* | *Text(40)* | *Text(15)* | *Numeric* | *Numeric* | *Text(2)* |
| ABC Consulting | MW-001 | GW-001-20140507 | Temp | 10 | 20 | ft |
| ABC Consulting | MW-001 | GW-001-20140507 | pH | 10 | 20 | ft |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **result\_date** | **result\_time** | **result\_value** | **result\_unit** | quantitation\_limit | **task\_code** | **sample\_matrix\_code** |
| *Date* | *Text(8)* | *Text(14)* | *Text(15)* | *Text(20)* | *Text(40)* | *Text(20)* |
| 5/7/2014 | 8:00 | 21 | deg C |  | RIFS | WG |
| 5/7/2014 | 8:00 | 6.5 | pH units |  | RIFS | WG |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **qualifier** | **sampling\_company\_code** | sampling\_reason | **sampling\_method** | **reportable\_result** | **value\_type** | remark |
| *Text(20)* | *Text(20)* | *Text(30)* | *Text(40)* | *Text(10)* | *Text(10)* | *Text(225)* |
|  | ABC |  |  | Yes | Actual |  |
|  | ABC |  |  | Yes | Actual |  |

### 5.2.5 DNREC Screening Results EDD

**This EDD file should only be populated with screening data from the Remediation Lab.**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **$data\_provider** | **sys\_loc\_code** | **sys\_sample\_code** | sample\_name | **field\_anl\_meth\_name** | **cas\_rn** | **chemical\_name** | start\_depth | end\_depth |
| *$Text(20)* | *Text(20)* | *Text(40)* | *Text(50)* | *Text(20)* | *Text(15)* | *Text(255)* | *Numeric* | *Numeric* |
| Remediation Lab | SB-005 | SB-005S-20140501 | SB005S | GC | VOC | VOC | 0 | 2 |
| Remediation Lab Lab | SB-005 | SB-005S-20140501 | SB005S | GC | PEST\_PCB | PEST\_PCB | 0 | 2 |
| Remediation Lab Lab | SB-005 | SB-005S-20140501 | SB005S | GC | SVOC | SVOC | 0 | 2 |
| Remediation Lab Lab | SB-005 | SB-005S-20140501 | SB005S | XRF | 7440-70-2 | Calcium | 0 | 2 |
| Remediation Lab Lab | SB-005 | SB-005S-20140501 | SB005S | XRF | 7440-62-2 | Vanadium | 0 | 2 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| depth\_unit | **result\_date** | **result\_value** | **result\_unit** | quantitation\_limit | task\_code | **sample\_matrix\_code** | **qualifier** | **sampling\_company\_code** |
| *Text(15)* | *DateTime* | *Text(20)* | *Text(15)* | *Text(20)* | *Text(20)* | *Text(10)* | *Text(20)* | *Text(20)* |
| ft | 5/2/2014 | Other |  |  | RIFS | SO |  | ABC |
| ft | 5/2/2014 | Other |  |  | RIFS | SO |  | ABC |
| ft | 5/2/2014 | Other |  |  | RIFS | SO |  | ABC |
| ft | 5/2/2014 | 949 | ppm |  | RIFS | SO |  | ABC |
| ft | 5/2/2014 | 0 | ppm |  | RIFS | SO |  | ABC |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| sampling\_reason | sampling\_method | **reportable\_result** | **value\_type** | screen\_result | **sample\_type\_code** | sample\_date | remark |
| *Text(30)* | *Text(40)* | *Text(10)* | *Text(10)* | *Text(50)* | *Text(20)* | *DateTime* | *Text(2000)* |
|  |  | Y | Estimated | ND | SCR | 5/1/2014 |  |
|  |  | Y | Estimated | ND | SCR | 5/1/2014 |  |
|  |  | Y | Estimated | PAH-LOW , TPH | SCR | 5/1/2014 | Dimethylphenol, phenols |
|  |  | Y | Actual |  | SCR | 5/1/2014 |  |
|  |  | Y | Actual |  | SCR | 5/1/2014 |  |

# Chemistry EDD Files

The DNREC format is divided into 32 sections which are organized in the following groupings: Initial, Subsurface Investigation, Field Activities, Chemistry, Basic Historical, and Vapor Intrusion. This portion of the manual briefly describes and provides examples of the Chemistry EDD files. Please refer to the EDD Description Tool (in EDP) for a full description of the fields within each file, field data type and length, whether the field is required, and whether the field is restricted by a reference table or enumeration file and must be populated by a valid value.

The Chemistry EDD files are primarily populated by the Laboratory (with the exception of the Sample Parameter EDD). However, there is some required data in the sample EDD that the Consultant will need to fill in because the laboratory will not have this data (e.g. sys\_loc\_codes, identity of field duplicate samples, etc.).

## 6.1 Description of Chemistry EDD Files

### 6.1.1 Sample EDD

The Sample EDD file contains data for the samples collected at the site and sent to a fixed lab for analysis. Fields include sample date, location, type, matrix, source, start and end depths, etc. The Sample EDD file must be submitted either prior to or in conjunction with TestResultQC and Batch EDD files.

Each sample at a facility must have a unique value, including spikes and duplicates. sys\_sample\_codes cannot match sys\_loc\_codes. DNREC prefers using the sys\_loc\_code as part of the sample ID and adding a date in the format (YYYYMMDD) in order to make it unique.

For Example: MW-001 + June 06, 2001= MW-001- 20010606).

For trip blanks that do not have unique sample IDs, enter TB plus the date, e.g., TB + April 5, 2000 = TB-20000405.

Non alpha-numeric characters (save for the underscore \_ and the dash - characters) are prohibited in the sys\_sample\_code. Other segments can be added to the sample ID such as information regarding the sample type, sample round, or sample depths.

One of the benefits of naming the sys\_sample\_code in this way may be seen in the following example: If a groundwater sample was taken at a second sampling event and named MW03 again at the later date, the sys\_sample\_code would not cause errors within the database because the date would make it unique.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Sys\_sample\_code** | **Sample\_**  **Name** | **Sample matrix code** | **Sample\_type\_Code** | **Sample\_source** | **Parent\_sample\_code** | **Sample\_**  **date** | **Sys\_loc\_**  **code** |
| MW-003-20110530 | MW-003 | WG | N | Field |  | 5/30/2011 | MW-003 |
| MW-010-20110530 | MW-010 | WG | FD | Field | MW-003-20110530 | 5/30/2011 | MW-003 |
| MW-003-MS-20110530 | MW-003-MS | WG | MS | Field | MW-003-20110530 | 5/30/2011 | MW-003 |
| MW-003-20110601 | MW-003 | WG | N | Field |  | 6/1/2011 | MW-003 |

WG = groundwater; N = normal; FD = field duplicate; MS = matrix spike

The sys\_loc\_code field should be left null if the sample is not associated with a specific location. For example, a field blank or a trip blank does not need a sys\_loc\_code.

Once the lab has completed the Sample EDD, the field project manager/consultant must add the sys\_loc\_code, duplicate sample information, sample depths, task code, and other necessary field sample data to the EDD.

Special Note to Labs: When checking the Sample EDD in EDP, you should expect errors from the data you do not have (i.e. sys\_loc\_code, parent\_sample\_code). The field project manager/consultant will fill in this information.

### 6.1.2 Test Result QC EDD

The Test Result QC EDD file contains data regarding the laboratory tests performed on samples, the results of those tests, and the associated quality control data. The sys\_sample\_code in the Test Result QC EDD file must match the sys\_sample\_code in the Sample EDD file.

### 6.1.3 Batch EDD

The Batch EDD file contains data associating samples with the laboratory batch identifier, and therefore connecting the laboratory quality control samples to the field sample which was processed and analyzed at the same time. Values in the following fields need to match those found in the Test Result QC EDD file: sys\_sample\_code, lab\_anl\_method\_name, analysis\_date, fraction, and test\_type.

### 6.1.4 Sample Parameter EDD

The sample parameter EDD file contains data associated with a sample such as PID, temperature, etc.

## **6.2 Example**s **of Chemistry EDD Files**

Note: Some fields have been omitted due to space considerations.

### 6.2.1 Sample EDD

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **$data\_provider** | **sys\_sample\_code** | **sample\_name** | **sample\_matrix\_code** | **sample\_type\_code** | **sample\_source** | parent\_sample\_code |
| *$Text(20)* | *Text(40)* | *Text(50)* | *Text(3)* | *Text(20)* | *Text(10)* | *Text(40)* |
| ABC Consulting | MW-001-20140507 | MW-001 | WG | N | Field |  |
| ABC Consulting | SB-005S-20140501 | SB-005S | SO | N | Field |  |
| ABC Consulting | SB-005D-20140501 | SB-005D | SO | N | Field |  |
| ABC Consulting | Dup-01-20140501 | Dup-01 | SO | FD | Field | SB-005D-20140501 |
| ABC Consulting | SB-005S-MS- 20140501 | SB-005S-MS | SO | MS | Lab | SB-005S-20140501 |
| ABC Consulting | SB-005S-SD- 20140501 | SB-005S-SD | SO | SD | Lab | SB-005S-20140501 |
| ABC Consulting | FB-01-20140501 | FB-1 | SQ | FB | Lab |  |
| ABC Consulting | TB-01-20140501 | TB-1 | SQ | TB | Lab |  |
| ABC Consulting | 40148.6826-LB | 40148.6826-LB | SQ | LB | Lab |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| sample\_delivery\_group | **sample\_date** | sys\_loc\_code | start\_depth | end\_depth | **depth\_unit** | chain\_of\_custody | sent\_to\_lab\_date |
| *Text(20)* | *DateTime* | *Text(20)* | *Numeric* | *Numeric* | *Text(15)* | *Text(15)* | *DateTime* |
| B200 | 2014/5/7 08:00:00 | MW-001 | 10 | 20 | ft |  | 2014/5/7 00:00:00 |
| A100 | 2014/5/1 09:00:00 | SB-005 | 0 | 2 | ft |  | 2014/5/1 00:00:00 |
| A100 | 2014/5/1 09:10:00 | SB-005 | 8 | 10 | ft |  | 2014/5/1 00:00:00 |
| A100 | 2014/5/1 08:00:00 | SB-005 | 8 | 10 | ft |  | 2014/5/1 00:00:00 |
| A100 | 2014/5/1 09:00:00 | SB-005 | 0 | 2 | ft |  | 2014/5/1 00:00:00 |
| A100 | 2014/5/1 09:00:00 | SB-005 | 0 | 2 | ft |  | 2014/5/1 00:00:00 |
| A100 | 2014/5/1 08:00:00 |  |  |  |  |  | 2014/5/1 00:00:00 |
| A100 | 2014/5/1 08:00:00 |  |  |  |  |  | 2014/5/1 00:00:00 |
| A100 | 2014/5/3 12:00:00 |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| sample\_receipt\_date | sampler | **sampling\_company\_code** | Additional Fields | **task\_code** | collection\_quarter | **composite\_yn** | Additional Fields |
| *DateTime* | *Text(30)* | *Text(20)* | *Text(40)* | *Text(5)* | *Text(1)* |
| 2014/5/7 17:00:00 |  | ABC | RIFS |  | N |
| 2014/5/1 17:00:00 |  | ABC | RIFS |  | N |
| 2014/5/1 17:00:00 |  | ABC | RIFS |  | N |
| 2014/5/1 17:00:00 |  | ABC | RIFS |  | N |
| 2014/5/1 17:00:00 |  | XYZ Lab | RIFS |  | N |
| 2014/5/1 17:00:00 |  | XYZ Lab | RIFS |  | N |
| 2014/5/1 17:00:00 |  | XYZ Lab | RIFS |  | N |
| 2014/5/1 17:00:00 |  | XYZ Lab | RIFS |  | N |
|  |  | XYZ Lab | RIFS |  | N |

### 6.2.2 Test Result QC EDD

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **$sys\_sample\_code** | **lab\_anl\_method\_name** | **analysis\_date** | **fraction** | **column\_number** | **test\_type** | **lab\_matrix\_code** |
| *$Text(40)* | *Text(35)* | *DateTime* | *Text(10)* | *Text(2)* | *Text(10)* | *Text(3)* |
| SB-005S-20140501 | SW8270 | 2014/5/7 19:00:00 | T | NA | Initial | SO |
| SB-005S-20140501 | SW6010 | 2014/5/8 10:00:00 | T | NA | Initial | SO |
| SB-005S-20140501 | SW8260 | 2014/5/7 17:00:00 | T | NA | Initial | SO |
| SB-005S-MS-20140501 | SW8260 | 2014/5/7 18:05:00 | T | NA | Initial | SO |
| SB-005S-MS-20140501 | SW8260 | 2014/5/7 18:05:00 | T | NA | Initial | SO |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **analysis\_location** | **basis** | container\_id | **dilution\_factor** | **prep\_method** | prep\_date | leachate\_method | leachate\_date |
| *Text(2)* | *Text(10)* | *Text(30)* | *Numeric* | *Text(20)* | *DateTime* | *Text(15)* | *DateTime* |
| LB | Dry |  | 2 | SW3550 | 2014/5/6 16:04:00 |  |  |
| LB | Dry |  | 2 |  |  |  |  |
| LB | Dry |  | 50 | SW5030 | 2014/5/3 12:15:00 |  |  |
| LB | Dry |  | 50 | SW5030 |  |  |  |
| LB | Dry |  | 50 | SW5030 |  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **lab\_name\_code** | **qc\_level** | **lab\_sample\_id** | percent\_moisture | Additional Fields | **cas\_rn** | **chemical\_name** | result\_value | result\_error\_delta |
| *Text(20)* | *Text(10)* | *Text(40)* | *Text(5)* | *Text(15)* | *Text(75)* | *Numeric* | *Text(20)* |
| XYZ Lab | Quant | 123456 | 9.6 | 86-74-8 | Carbazole |  |  |
| XYZ Lab | Quant | 123456 | 9.6 | 7440-39-3 | Barium | 41.8 |  |
| XYZ Lab | Quant | 123456 | 9.6 | 79-01-6 | Trichloroethylene |  |  |
| XYZ Lab | Quant | 123456MS | 9.6 | 74-87-3 | Chloromethane | 6600 |  |
| XYZ Lab | Quant | 123456MS | 9.6 | 79-01-6 | Trichloroethylene | 5000 |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **result\_type\_code** | **reportable\_result** | **detect\_flag** | lab\_qualifiers | validator\_qualifiers | **interpreted\_qualifiers** | **validated\_yn** |
| Text(10) | Text(10) | Text(2) | Text(10) | Text(10) | Text(10) | Text(1) |
| TRG | Yes | N | U |  | U | N |
| TRG | Yes | Y |  |  |  | N |
| TRG | Yes | N | U |  | U | N |
| SC | Yes | Y |  |  |  | N |
| SC | Yes | Y |  |  |  | N |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| method\_detection\_limit | reporting\_detection\_limit | quantitation\_limit | **result\_unit** | **detection\_limit\_unit** | Additional Fields | qc\_spike\_added |
| *Text(20)* | *Numeric* | *Text(20)* | *Text(15)* | *Text(15)* | *Numeric* |
| 7 | 740 |  | ug/kg | ug/kg |  |
| 0.34 | 0.34 |  | mg/kg | mg/kg |  |
| 24 | 91 |  | ug/kg | ug/kg |  |
| 23 | 450 |  | ug/kg | ug/kg | 4500 |
| 24 | 91 |  | ug/kg | ug/kg | 4500 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| qc\_spike\_measured | qc\_spike\_recovery | Additional Fields | qc\_spike\_lcl | Additional Fields | **lab\_sdg** |
| *Numeric* | *Numeric* | *Text(8)* | *Text(20)* |
|  |  |  | A100 |
|  |  |  | A100 |
|  |  |  | A100 |
| 6600 | 147 | 61 | A100 |
| 5000 | 111 | 71 | A100 |

### 6.2.3 Batch EDD

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **$sys\_sample\_code** | **lab\_anl\_method\_name** | **analysis\_date** | **fraction** | **column\_number** | **test\_type** | **test\_batch\_type** | **test\_batch\_id** |
| *$Text(40)* | *Text(35)* | *DateTime* | *Text(10)* | *Text(2)* | *Text(10)* | *Text(10)* | *Text(20)* |
| SB-005S-20140501 | SW8270 | 2014/5/7 19:00:00 | T | NA | Initial | Analysis | 1111 |
| SB-005S-20140501 | SW6010 | 2014/5/8 10:00:00 | T | NA | Initial | Analysis | 2222 |
| SB-005S-20140501 | SW8260 | 2014/5/7 17:00:00 | T | NA | Initial | Analysis | 3333 |
| SB-005S-MS-20140501 | SW8260 | 2014/5/7 18:05:00 | T | NA | Initial | Analysis | 3333 |

### 6.2.4 Sample Parameter EDD

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **$sys\_sample\_code** | **param\_code** | **measurement\_date** | **param\_unit** | param\_value | measurement\_method | remark |
| *$Text(40)* | *Text(20)* | *DateTime* | *Text(15)* | *Text(255)* | *Text(20)* | *Text(2000)* |
| FishTissue-01-20140201 | species | 2/1/2014 |  | channel catfish |  |  |

# Basic Historical EDD Files

The DNREC format is divided into 32 sections which are organized in the following groupings: Initial, Subsurface Investigation, Field Activities, Chemistry, Basic Historical, and Vapor Intrusion This portion of the manual briefly describes and provides examples of the Basic Historical EDD files. Please refer to the EDD Description Tool (in EDP) for a full description of the fields within each file, field data type and length, whether the field is required, and whether the field is restricted by a reference table or enumeration file and must be populated by a valid value.

**Data providers must obtain approval from the DNREC Project Officer before populating or submitting Basic Historical EDD files.** These files consist of “historical” data only.

Basic Historical EDD files are usually created by Consultants (as data providers). Not all Basic Historical EDD files must be submitted. See Section 2.3.1 for the EDD files that DNREC requires for each facility in the database. However, all required fields within an EDD file must be populated.

## 7.1 Description of Basic Historical EDD Files

### 7.1.1 Basic Locations EDD

The basic location level EDD file contains historical location information.

### 7.1.2 Basic Water Level EDD

The basic water level EDD file contains data in reference to water level measurements collected during historical sampling activities.

### 7.1.3 Basic Chemistry EDD

The basic chemistry EDD file contains historical chemistry data including sample, analytical test, and analytical result information.

### 7.1.4 Basic Geology EDD

The basic geology EDD file contains historical geology and lithology data.

# **7.2 Examples of Basic Historical EDD Files**

Note: Some fields have been omitted due to space considerations.

### 7.2.1 Basic Locations EDD

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **$data\_provider** | **sys\_loc\_code** | well\_id | **site\_code** | **x\_coord** | **y\_coord** | **surf\_elev** | **elev\_unit** | **coord\_sys\_desc** | loc\_name |
| *$Text(20)* | *Text(20)* | *Text(30)* | *Text(20)* | *Numeric* | *Numeric* | *Numeric* | *Text(2)* | *Text(20)* | *Text(40)* |
| ABC Consulting | MW-008 | 123467 | OU1 | 210250 | 65020 | 22.8 | ft | SP NAD 83 DE 0700 | MW-008 |
| ABC Consulting | SB-004 |  | OU1 | 210300 | 65030 | 23.1 | ft | SP NAD 83 DE 0700 | SB-004 |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| loc\_desc | **loc\_type** | loc\_purpose | **within\_facility\_yn** | depth\_to\_top\_of\_screen | depth\_to\_bottom\_of\_screen | top\_casing\_elev |
| *Text(255)* | *Text(20)* | *Text(20)* | *Text(1)* | *Numeric* | *Numeric* | *Numeric* |
|  | MonWell |  | Y |  |  |  |
|  | SOILBORE |  | Y |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| depth\_to\_bottom\_of\_well | total\_depth | remark | **horz\_collect\_method\_code** | **horz\_accuracy\_value** | **horz\_accuracy\_unit** | **horz\_datum\_code** |
| *Numeric* | *Numeric* | *Text(255)* | *Text(3)* | *Text(20)* | *Text(15)* | *Text(3)* |
|  |  |  | S1 | 0.1 | ft | 002 |
|  |  |  | G3 | 10 | ft | 002 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| stream\_mile | stream\_code | **alt\_x\_coord** | **alt\_y\_coord** | **alt\_coord\_type\_code** | **alt\_identifier** |
| *Numeric* | *Text(30)* | *Numeric* | *Numeric* | *Text(20)* | *Text(20)* |
|  |  | 38.5856989 | -75.2990249 | Lat Long | Primary |
|  |  | 38.5857884 | -75.2984508 | Lat Long | Primary |

### 7.2.2 Basic Water Level EDD

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **$sys\_loc\_code** | **measurement\_date** | **historical\_reference\_elev** | water\_level\_depth | water\_level\_elev | measured\_depth\_of\_well |
| *$Text(20)* | *DateTime* | *Numeric* | *Numeric* | *Numeric* | *Numeric* |
| MW-008 | 5/7/2010 | 25.21 | 16.44 | 8.77 | 22.33 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **depth\_unit** | remark | dry\_indicator\_yn | **Lnapl\_cas\_rn** | Lnapl\_depth | **Dnapl\_cas\_rn** | Dnapl\_depth | task\_code | **reportable\_yn** |
| *Text(15)* | *Text(255)* | *Text(1)* | *Text(15)* | *Numeric* | *Text(15)* | *Numeric* | *Text(40)* | *Text(1)* |
| ft |  | N |  |  |  |  |  | Y |

### 7.2.3 Basic Chemistry EDD

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **$data\_provider** | **sys\_sample\_code** | sys\_loc\_code | **sample\_name** | **sample\_matrix\_code** | **sample\_type\_code** | **sample\_source** |
| *$Text(20)* | *Text(40)* | *Text(20)* | *Text(50)* | *Text(2)* | *Text(20)* | *Text(10)* |
| ABC Consulting | SB-004S-20100415 | SB-004 | SB-004S | SO | N | Field |
| ABC Consulting | SB-004D-20100415 | SB-004 | SB-004D | SO | N | Field |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| parent\_sample\_code | **sample\_date** | start\_depth | end\_depth | **depth\_unit** | composite\_yn | **lab\_anl\_method\_name** | **analysis\_date** |
| *Text(40)* | *DateTime* | *Numeric* | *Numeric* | *Text(15)* | *Text(1)* | *Text(35)* | *DateTime* |
|  | 4/15/2010 | 0 | 2 | ft |  | Unknown | 4/17/2010 |
|  | 4/15/2010 | 10 | 12 | ft |  | Unknown | 4/17/2010 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **fraction** | **column\_number** | **test\_type** | **lab\_matrix\_code** | **analysis\_location** | basis | **dilution\_factor** | qc\_level |
| *Text(10)* | *Text(2)* | *Text(10)* | *Text(10)* | *Text(2)* | *Text(10)* | *Numeric* | *Text(10)* |
| T | NA | Initial |  | LB |  | 1 |  |
| T | NA | Initial |  | LB |  | 1 |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **lab\_sample\_id** | **cas\_rn** | **chemical\_name** | result\_value | **result\_type\_code** | **reportable\_result** | **detect\_flag** | lab\_qualifiers |
| *Text(40)* | *Text(15)* | *Text(75)* | *Numeric* | *Text(10)* | *Text(10)* | *Text(2)* | *Text(10)* |
| UNKNOWN-HISTORICAL | 79-01-6 | Trichloroethylene | 200 | TRG | Yes | Y |  |
| UNKNOWN-HISTORICAL | 79-01-6 | Trichloroethylene | 300 | TRG | Yes | Y |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| validator\_qualifiers | **interpreted\_qualifiers** | **validated\_yn** | reporting\_detection\_limit | **result\_unit** |  | **lab\_name\_code** |
| *Text(10)* | *Text(10)* | *Text(1)* | *Numeric* | *Text(15)* | Additional | *Text(20)* |
|  |  | N |  | mg/kg | Fields | Unknown |
|  |  | N |  | mg/kg |  | Unknown |

### 7.2.4 Basic Geology EDD

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **$sys\_loc\_code** | **start\_depth** | **material\_type** | **geo\_unit\_code\_1** | **geo\_unit\_code\_2** | remark |
| *$Text(20)* | *Numeric* | *Text(40)* | *Text(20)* | *Text(20)* | *Text(255)* |
| MW-008 | 0 | TOPSOIL | Qcl |  |  |
| MW-008 | 1 | CLAYEY SAND | Qcl |  |  |
| MW-008 | 12 | SANDY SILT | Qcl |  |  |

# Vapor Intrusion

The DNREC format is divided into 32 sections which are organized in the following groupings: Initial, Subsurface Investigation, Field Activities, Chemistry, Basic Historical, and Vapor Intrusion. This portion of the manual briefly describes and provides examples of the Vapor Intrusion EDD files.

The Vapor Intrusion (VI) section of the EDD exists to capture “soil vapor intrusion” data. Soil Vapor Intrusion investigations focus on the potential for vapors to enter a building and usually include subslab vapor samples, indoor air vapor samples and outdoor air vapor samples as well as information about the building. This EDD group contains all the EDD sections necessary to submit VI data. For Vapor Intrusion data, it is not necessary to include portions of other EDD Groups. The VI EDD Group consists of data tables for inventorying buildings and structures, cataloging factors that impact air quality within structures, and for the location, sample and chemistry results for soil vapor, indoor air and ambient outdoor air samples collected.