Defense Occupational and Environmental Health Readiness System – Industrial Hygiene (DOEHRS-IH)

Environmental Health Sampling Electronic Data Deliverable (EDD) Guide

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V4.0

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1   Introduction

This document describes the requirements for importing environmental sampling laboratory data into the Defense Occupational and Environmental Health Readiness System – Industrial Hygiene (DOEHRS-IH). The data file that is imported is referred to as an electronic data deliverable (EDD) and is similar in structure to the Environmental Protection Agency's Staged Electronic Data Deliverable 2b (SEDD 2b). The Army Public Health Center (APHC) routinely produces EDDs from their Laboratory Information Management System (LIMS) used to process environmental samples. There is not a direct interface between DOEHRS-IH and LIMS. This document details the data format of the EDD import file and associated common pick lists for its data elements.

2   Concept of Operations

DOEHRS-IH requires the user to enter attributes about the sample (e.g. sample type, date, time, location, conditions, etc.). This process results in the systematic creation of a Sample Barcode ID (i.e. a DOEHRS ID). Though not required, it is recommended that the DOEHRS ID be entered into the LIMS or laboratory software when the sample arrives at the laboratory so that the EDD, when generated, will contain the DOEHRS ID. The DOEHRS ID links all the laboratory data to the sample, therefore if it is not entered into LIMS, it must be manually added to the EDD, introducing the potential for human error. The EDD is a simple text file that is imported into DOEHRS-IH by the customer requesting the analysis of samples. An Excel version is often also sent for internal data validation, but only the tab-delimited text file can be imported. Once the EDD is imported, the analytical results are available in the DOEHRS-IH and Business Objects (BO) applications.

3   Import File Specifications

The text file type must be ANSI or UTF-8 with the character set of ASCII. The file must be tab delimited and each line is terminated by a carriage return and a line feed. The first line of the import file must be a header row that consists of the field names as specified in Table 1. All fields in the EDD are variable width and are not padded with blank spaces. Table 1 lists these fields along with a description, an indication of whether the data is required or not, the data type, and the maximum character length (for text fields only). See sections 3.1-3.4 for more detail. The order, case sensitivity and spacing of words must match exactly or the EDD will not be processed. It is critical for the header row and file format to meet these requirements or no data will load and the import will fail immediately. It is also critical for each individual record (i.e. row) to load by meeting the specific criteria in section 3.1. It is possible for an EDD import to be successful, but only partially load records if certain rows did not meet the criteria. DOEHRS-IH will produce a "Jobs Report" for all EDD imports. These are important to review to ensure the EDD as a whole, and all its records, were processed successfully. An example EDD in both a text and Excel format can be found at the following link under "Other Resources".

https://phc.amedd.army.mil/topics/envirohealth/hrasm/Pages/DOEHRS_Resources.aspx

Table 1. DOEHRS-IH EDD Import File Data Specifications

Field #	Field name	Description	From Pick List?	Type	Maximum Size	Designation
1	DOEHRS ID	The Sample Barcode ID automatically generated by DOEHRS-IH	No	TEXT	8	Required
2	Field ID	Local sample identifier	No	TEXT	30	Useful
3	DLS Sample Number	ID lab assigned by the Lab	No	TEXT	30	Required
4	Collection Date	Date the sample was collected	No	DATE	MM/DD/YYYY	Useful
5	Matrix Description	Description of the sample matrix	Yes	TEXT	30	Required
6	Analyte Code	Chemical Abstracts Service (CAS) number of the analyte OR short code	Yes	TEXT	15	Required
7	Analyte Name	Name of the analyte	No	TEXT	30	Useful
8	Concentration	Concentration of the analyte; must use decimals; negatives allowed	No	NUMBER	NA	Functional
9	Units	Units in which the concentration is reported	Yes	TEXT	30	Required
10	LOD	Limit of detection (in the same units as the Concentration)	No	NUMBER	NA	Useful
11	Below LOD	Y indicates below the LOD	Yes	TEXT	1	Useful
12	LOQ	Limit of Quantification (in the same units as the Concentration)	No	NUMBER	NA	Functional
13	Below LOQ	Y indicates below the LOQ	Yes	TEXT	1	Functional
14	MDL	Method Detection Limit (in the same units as the Concentration)	No	NUMBER	NA	Useful
15	Non Detect	Y indicates a non-detect (below the MDL)	Yes	TEXT	1	Useful

Field #	Field name	Description	From Pick List?	Type	Maximum Size	Designation
16	CLP Flags	Contract Laboratory Program flags	No	TEXT	10	Useful
17	Analytical Method	Analytical Method used to perform the analysis	Yes	TEXT	30	Required
18	Date Analyzed	Date the analysis was performed	No	DATE	MM/DD/YYYY	Useful
19	Analyst	ID of the analyst (or the lab code for contracted work)	No	TEXT	30	Useful
20	Lab	Code of the laboratory which performed the analysis	No	TEXT	4	Useful
21	DLS Code	DLS Procedure code requested which generated this result	No	TEXT	10	APHC Only
22	Comment	Comment regarding the result	No	TEXT	250	Useful
23	Sample Comment	Comment regarding the sample, work order or batch	No	TEXT	250	Useful
24	Report Sequence Number	Unique sequence ID of the import file	No	NUMBER	NA	APHC Only
25	Report Type	Must say "Final"	No	TEXT	20	Required
26	Report Date	Date the import file was generated	No	DATE	MM/DD/YYYY	Useful
27	CHPPM Region	Legacy name of APHC (i.e. CHPPM). The region is the location of lab	No	TEXT	6	APHC Only
28	Project Number	Contains the work order or Project ID	No	TEXT	50	APHC Only

Table 2. Table 1 Column Descriptions

Field number	Used for simple identification in this guide. In Excel field 1 is always column A, field 2 is column B and so forth.
Field name	The name seen in the header row of the EDD. Column headers must be written exactly as shown (no spaces before or after the name) or the whole import will be rejected.
Description	Short summary about that field.
From Pick List?	Indicates the value of the field must match a value from a standard DOEHRS-IH pick list table. The record will not load if this is not used correctly. Please refer to the following link for current DOEHRS-IH Pick List tables under "Other Resources" and open the Excel file called 'EDD - Pick List Values in Excel'. https://phc.amedd.army.mil/topics/envirohealth/hrasm/Pages/DOEHRS_Resources.aspx
Type	DOEHRS-IH will be expecting a text or a number value only. Text fields can accept text with numbers. The date format must be MM/DD/YYYY. The record will not load if this is not met.
Maximum Size	Text characters in this field cannot exceed this limit. Number fields are unlimited. The record will not load if this is not met.
Designation	Those labeled "Required" cannot be NULL or the row will not load. The other fields are not required but those labeled "Functional" are effectively required for any useful data analysis. Any field used must adhere to the Type and Maximum size requirements or the row will not load.

3.1   Data Field Designation - Required

Required content: Must be populated or the record will not load.

- Field 1. DOEHRS ID: A unique ID obtained from DOEHRS-IH when a sample is entered and saved. This ID is required and used to link the analytical results to the sample when the EDD is imported. This ID does not have to come from a LIMS or laboratory software export, but it must be in the EDD to successfully import.

- Field 3. DLS Sample Number: This is the internal number given to each sample from the lab. No special characters allowed; only letters and numbers. Different DLS Sample Numbers can be used for a single DOEHRS ID.

- Field 5. Matrix Description: This must be one of the acceptable matrix types in DOEHRS-IH. If the matrix listed in the EDD is not in DOEHRS-IH, or does not match exactly, the record will not load. Adding new matrix descriptions can only be accomplished in the monthly database maintenance change request cycles, but it is generally advised to use one of the already established choices to reduce unnecessary delays.

- Field 6. Analyte Code: Typically, these are universally accepted Chemical Abstracts Service (CAS) numbers, but some parameters utilize an in-house "Acode" such as Turbidity or pH. The Analyte Code field in the EDD and DOEHRS-IH (i.e. either the CAS or Acode) corresponds to an Analyte Name in DOEHRS-IH, which may be subtly different in each Lab. The Analyte Name displayed in

the EDD may not match DOEHRS-IH even if the Analyte Code is correct. **The Analyte Name linked to the Analyte Code in DOEHRS-IH is what will be reported**. If the Analyte Code listed in the EDD is not in DOEHRS-IH, or does not match exactly, the record will not load. However, adding new CASs or Acodes can be done immediately by users with certain permissions.

- Field 9. Units: DOEHRS-IH contains various standard units. Results with units not in DOEHRS-IH will not load. While DOEHRS-IH stores the units from the EDD in the database (and can always be retrieved from BO), it displays a preferred unit, as well as the applicable measurement conversion (e.g. EDD shows ng/L, but DOEHRS-IH displays mg/L and the value is converted). If the unit listed in the EDD is not in DOEHRS-IH, or does not match exactly, the record will not load. Due to the conversion process used, adding new units can only be accomplished in the monthly database maintenance change request cycles.

- Field 17. Analytical Method: This is the method used to conduct the laboratory analysis. Although common Analytical Methods are used across laboratories (e.g. EPA methods) the nomenclature used by the laboratory may vary. In some cases, 2 methods may be used resulting in 2 different rows for the same analyte. In these situations DOEHRS-IH will display the concentration and method with the highest value, but both records will be stored in the database and available from BO. If the method(s) listed in the EDD is not in DOEHRS-IH, or does not match exactly, the record will not load. However, adding new methods can be done immediately by users with certain permissions.

- Field 25. Report Type: A value of "Final" must be used or the record will not load.

3.2   Data Field Designation – Functional

Functional content: These fields are essentially required to process the data in any meaningful way, but if left NULL the record will still load. However, the data will be effectively meaningless.

- Field 8. Concentration: Decimals must be used for all concentration values (no scientific notation). Negative concentrations can be loaded as needed (e.g. radiation values). If the concentration is below the LOQ, typically a 0 is used, but it can be NULL or some other value.

- Field 12. LOQ: Limit of Quantitation is the minimum level of an analyte that can be reported with a high degree of confidence (typically 99%). The value for the LOQ should be reported in the same units as the Concentration.

- Field 13. Below LOQ: A "Y" is used if the concentration is below the LOQ. Leave as NULL if the values was above the LOQ.

3.3   Data Field Designation – Useful

Useful Content: These fields are optional, but often valuable. While not directly functional, some have a high degree of usefulness for data validation. They can be left NULL, but some fields are very useful, such as LOD, MDL and CLP flags.

- Field 2. Field ID: This is the local sample ID provided by the person collecting the sample.

- Field 4. Collection Date – Date sample was collected, usually provided by the sample collector.

- Field 7. Analyte Name – Name of analyte used by the lab, but Analyte Name associated with Analyte Code is what DOEHRS-IH will display.

- Field 10. LOD – Limit of Detection is an estimate of the minimum amount of an analyte that the laboratory can reliably detect, but with less confidence than the LOQ. LODs are generally less than the LOQs. The value for the LOD should be reported in the same units as the Concentration and LOQ.

- Field 11. Below LOD – A "Y" is used if the concentration is below the LOD. Leave as NULL if the values was above the LOD.

- Field 14. MDL – Method Detection Limit is the theoretically lowest concentration of the analyte that can be reported with confidence that the analyte concentration is not a false positive. MDLs are generally less than LODs. The value for the MDL should be reported in the same units as the Concentration, LOQ and LOD.

- Field 15. Non Detect - A "Y" is used if the concentration is below the MDL. Leave as NULL if the values was above the MDL.

- Field 16. CLP Flags: Contract Laboratory Program data qualifiers (e.g. U, J, B, H, M, E etc). DOEHRS-IH takes action on the presence of a "J" flag for estimated values (typically below the LOQ). If the LOQ = "Y", but a "J" is present in the row, the Concentration will display in DOEHRS-IH and appear as a detected analyte with the "J" subscript.

- Field 18. Date Analyzed – The date the analysis was conducted for the particular analyte.

- Field 19. Analyst - The user ID of the analyst (or the lab code for contracted work).

- Field 20. Lab - The code of the laboratory which performed the analysis.

- Field 22. Comment: Comments about the analytical result. This information does not affect the results directly, but is useful to easily reference results should there be confusion regarding a parameter's concentration or value.

- Field 23. Sample Comment: Comments on the overall sample (e.g. holding times issues, condition of sample, etc.) This information does not affect the results directly, but is useful to easily reference results should there be confusion regarding the sample.

- Field 26. Report Date - The date the import file was generated.

3.4   Data Field Descriptions – APHC Only

APHC Only Content: These fields are only used by APHC and are part of DOEHRS-IH due to APHC's role in the development process. They can be left NULL.

- Field 21. DLS Code - The DLS Procedure code requested by the APHC LIMS which generated this result.

- Field 24. Report Sequence Number - Unique sequence ID of the import file from the APHC LIMS.

- Field 27. CHPPM Region – Only applies to APHC (previously known as CHPPM) laboratories.

- Field 28. Project Number: The APHC "batch number." If provided can be used to search on samples that are contained within one batch or work order (project ID) instead of searching by location and date.

3.5 Reloading Corrected EDDs

It may be necessary to reload an EDD. There are various reasons why this might occur, but it is typically due to an issue with an analyte's concentration and/or detection status and the need to update a value. The best course of action is to fix the values in the EDD and reload the full file. If the file is large and contains many DOEHRS IDs, isolating the sample to be fixed is advised to reduce wait times when reloading the data. The following precautions should also be noted:

- The DLS Sample Number and Analyte Code have a unique relationship with the DOEHRS ID. If the DLS Sample Number is changed on the re-loaded EDD, 2 concentrations for the analyte will exist. Therefore, it is critical to keep the same DLS Sample Number on the re-loaded EDD in this situation.

- If there were analytes originally loaded, but later found to be in the EDD by accident (or were not valid), the correction process is different. The DLS Sample Number for the DOEHRS ID needs to be manually dissociated (from with DOEHRS-IH) before the new EDD is loaded. In this case, it is advised to make and use a different DLS Sample Number for that DOEHRS ID so a new, unique DLS Sample Number and Analyte Code relationship can be established.

3.6 Contacts

For any questions on the DOEHRS-IH EDD requirements or process, please email usarmy.apg.medcom-aphc.mbx.esiprequests@mail.mil