UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

April 19, 2023 *Sent via email*

Rich Kupiec
Buckhorn, Inc.
400 TechneCenter Dr #215
Milford, OH 45150

Re: **Data Management Plan Version 3**
New Idria Mercury Mine Superfund Site, San Benito County, California

Dear Mr. Kupiec,

This letter is regarding submittals pursuant to the *Administrative Settlement Agreement and Order on Consent for Remedial Investigation/Feasibility Study* (CERCLA Docket No. AOC-2014-11) (AOC) and the accompanying *Appendix A to Administrative Settlement Agreement on Consent Statement of Work for Remedial Investigation and Feasibility Study (RI/FS)* (SOW) (US EPA Region 9 November 2018) (Agreement).

Thank you for the submittal of the February 13, 2023 version of the *Data Management Plan Version 3 New Idria Mercury Mine Superfund Site, San Benito County, California* (Plan V.3). EPA has reviewed the Plan V.3 and is approving the Plan V.3.

EPA will continue to work with Buckhorn on refining any Electronic Data Deliverable formats (for example, valid values and table/view structure for Scribe submittals) as an ongoing part of implementing the Plan V.3. EPA may also request period submittals of geospatial data in formats other than ESRI, for example google earth-compatible files.

If you have any questions, I can be reached at knapp.freyja@epa.gov or 415-972-3025.

Regards,

Freyja Knapp, Ph.D.

cc via email:
Doug Christoff, Buckhorn, Inc.
Chris Stubbs, Ph.D., Ramboll Group
David Liu, Ph.D., Ramboll Group
Uma Patel, P.E., Ramboll Group
Jamie Egan, Jacobs Engineering
Tom Wallis, Jacobs Engineering

Prepared for
United States Environmental Protection Agency Region 9
San Francisco, California

On behalf of
Buckhorn, Inc.

Prepared by
Ramboll US Consulting, Inc.
Irvine and Emeryville, California

Project Number
1690011188-005

Date
February 13, 2023

DATA MANAGEMENT PLAN (VERSION 3)

NEW IDRIA MERCURY MINE SUPERFUND SITE SAN BENITO COUNTY, CALIFORNIA

RAMBOLL

CONTENTS

TABLES

FIGURE

APPENDIX

ACRONYMS AND ABBREVIATIONS

°C	degrees Celsius
AMD	acid mine drainage
AOC	Administrative Settlement Agreement and Order on Consent for Remedial Investigation and Feasibility Study, CERCLA Docket No. AOC-2014-1
Buckhorn	Buckhorn, Inc.
COC	Chain-of-custody
DMP	Data Management Plan
EDD	electronic data deliverable
EFWEDD	EQuIS 4-File EDD format
EPA	Environmental Protection Agency
EQuIS	Environmental Quality Information System
FD	field duplicate
GIS	geographic information system
GNSS	global navigation satellite system
GPS	Global Positioning System
ID	identification
µg/m^3	microgram per cubic meter
µS/cm	microSiemens per centimeter
mg/L	milligram per liter
mL	milliliter
mS/cm	milliSiemens per centimeter
NAD83	North American Datum 1983
NIMM	New Idria Mercury Mine
QAPP	Quality Assurance Project Plan
QC	Quality Control
Ramboll	Ramboll US Consulting, Inc.
RI	Remedial Investigation
RI/FS	Remedial Investigation and Feasibility Study
US	United States
USEPA	United States Environmental Protection Agency
WGS84	World Geodetic Survey 1984
WKID	Well-known ID
XRF	x-ray fluorescence

1. INTRODUCTION

On behalf of Buckhorn, Inc. (Buckhorn), Ramboll US Consulting, Inc. (Ramboll; formerly Ramboll US Corporation and Ramboll Environ) has prepared this Data Management Plan (DMP) in order to establish practices and procedures for data management associated with the Remedial Investigation and Feasibility Study (RI/FS) for the New Idria Mercury Mine (NIMM) Superfund Site ("the Site"), located near the town of New Idria in San Benito County, California.

The purpose of the RI is to characterize the nature and extent of hazardous substances released at the Site. Data from the RI will be used to assess the magnitude of potential human health and ecological risks from such releases and evaluate potential remedial alternatives to reduce or eliminate human health and ecological risks posed thereby. This DMP is intended to supplement the RI/FS Work Plan (Version 3; Ramboll 2022a), which was submitted to the United States Environmental Protection Agency (USEPA or EPA) on May 27, 2022 and approved by EPA on July 15, 2022.

1.1 Purpose and Objectives

The purpose of this DMP is to establish consistent data structures, practices, and procedures in order to manage project data and documents effectively. Effective data management minimizes project costs, mitigates risks to data and documents due to miscommunication and/or mismanagement, and improves accessibility of high-quality data and documents when and where they are needed, without ambiguity or conflict, thereby supporting effective decision-making. This DMP serves as a project-level reference document, applicable to current and future data management practices. Addenda and/or revisions will be issued as necessary to maintain the effectiveness of the DMP for its stated purpose.

The objectives of this plan are as follows:

- Identify and standardize all project data sources and types, including analytical data, groundwater elevation data, field-measured sampling parameter data, flow data, location information, geographic information system (GIS) data, and documents;
- Align the DMP with relevant existing plans and procedures, including the Site-Wide Quality Assurance Project Plan (QAPP) (Version 3; Ramboll 2022b), which was submitted to EPA on May 31, 2022 and approved by EPA on July 13, 2022, and regulatory guidance; and
- Define data structures, practices, procedures, and schedules for sharing data with appropriate stakeholders.

1.2 Document Organization

The organization of the DMP is as follows:

- **Section 1** presents a brief introduction, identifying the purpose and objectives of this DMP.
- **Section 2** presents the data management workflow, data responsibilities, and contact information for key data participants.
- **Section 3** presents data collection procedures, including project data types, field data collection methodologies, resulting data deliverables, and data processing.

- **Section 4** presents data storage information for analytical data, spatial data, and data documents.
- **Section 5** presents data verification procedures.
- **Section 6** presents data analysis procedures and reporting requirements.
- **Section 7** lists the references cited in this DMP.

Appendices to this DMP include:

- **Appendix A** Environmental Quality Information System (EQuIS) Electronic Data Deliverable (EDD) Specifications.

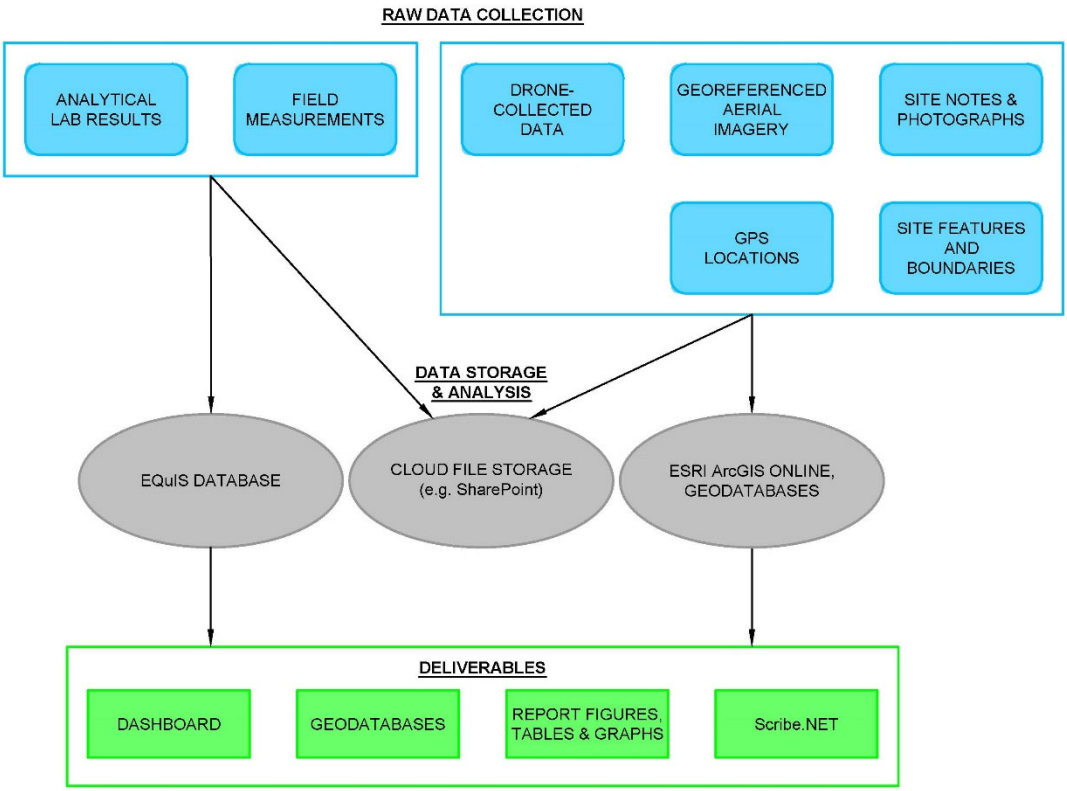
2. DATA MANAGEMENT WORKFLOW

2.1 Data Flow

This DMP details standardized procedures for site-specific data management to ensure high data quality and consistent data storage methods. Procedures for other data tasks (i.e., data collection and data validation) are described in separate documents and guidance.

As shown in Figure 1, sampling data and field measurements are collected and loaded to an EQuIS® database while georeferenced data are stored either in ArcGIS Online or geodatabases for use in ArcGIS Pro. Project documents are stored on SharePoint.

Figure 1. Project Data Flow



2.2 Roles and Responsibilities

Participation from all project personnel is necessary to implement data collection, processing, and storage procedures consistently. Table 1 lists the names and contact information for parties interested in data; changes in key roles at Ramboll will be communicated to other parties. Key roles and responsibilities at Ramboll are as follows:

- **Project Manager and Project Coordinator:** The Project Manager and Project Coordinator are responsible for implementing the DMP for the project. They will ensure that the field team collects field data as directed by the DMP, including all specified data elements, and that data are uploaded or stored accordingly. They are also to consult with the Database Administrator and GIS Administrator prior to and during field data collection to coordinate the data management efforts.

- **Quality Control (QC) Manager:** The QC Manager is responsible for: 1) coordinating and implementing the QA/QC program as it relates to the collection and completeness of data from field and laboratory operations; 2) monitoring QA/QC deficiencies and corrective actions; and 3) writing and maintaining the project-specific QAPPs and overseeing their implementation. The QC Manager also coordinates data validation and ensures data are acceptable for reporting.
- **Database Administrator:** The Database Administrator is responsible for processing, loading, and maintaining the laboratory analytical data (including analytical data from environmental samples, field QC samples, and laboratory QC samples) in the EQuIS database. Location data associated with environmental samples will also be maintained in the EQuIS database. Field measurements may also be maintained in EQuIS if practical and appropriate. The Database Administrator is also responsible for: 1) providing the field team with the required data elements, data collection procedures, and data formats; 2) verifying that field data are collected in accordance with the DMP guidelines and providing quality control; and 3) providing feedback on laboratory deliverables to the Laboratory Project Manager and publishing validated laboratory analytical data to Scribe.NET. Field measurements will not be published to Scribe.NET but will be provided in file geodatabases and/or raw SharePoint uploads as appropriate by the GIS Administrator or Field Team.
- **GIS Administrator:** The GIS Administrator is responsible for processing, displaying, and maintaining spatial data and corresponding metadata. This includes but is not limited to: the Site areas and boundaries, georeferenced raster data (e.g., satellite and drone imagery), locations recorded using high-accuracy GPS, and current project files on ArcGIS Online and file geodatabases. The GIS Administrator will coordinate with the Database Administrator to extract and present data for analysis and deliverable preparation.
- **Field Team:** The field team is responsible for recording, checking, and uploading field data. Raw data should be collected and stored as specified by the Database Administrator and/or GIS Administrator.

Table 1. Contact Information

Responsible Party	Contact Person	Contact Information
Respondent		
Buckhorn	**Project Coordinator:** Rich Kupiec	rkupiec@buckhorninc.com, (412) 551-7081
Agency		
EPA	**EPA Remedial Project Manager:** Freyja Knapp, PhD	knapp.freyja@epa.gov, (415) 972-3025
Consultant		
Ramboll	**Project Manager:** Christopher Stubbs, PhD, PE	cstubbs@ramboll.com, (510) 420-2552

Table 1. Contact Information

Responsible Party	Contact Person	Contact Information
	Project Coordinator: Uma Patel, PE	upatel@ramboll.com, (510) 420-2544
	Quality Control Manager: Kristin Drucquer	kdrucquer@ramboll.com, (405) 905-4772
	Database Administrator: Jon Hunt, PhD	jhunt@ramboll.com, (510) 420-2572
	GIS Administrator: John Crowther	jcrowther@ramboll.com, (510) 420-2594
Main Project Analytical Laboratory and Data Validator		
Eurofins CalScience (Eurofins)	**Laboratory Project Manager:** Vikas Patel[1]	vikas.patel@et.eurofinsus.com, (714) 895-5494
Laboratory Data Consultants (LDC)	**Project Manager:** Stella Cuenco	scuenco@lab-data.com, (760) 827-1140

Notes:

[1] For questions regarding specific sampling events, companies should contact the relevant assigned lab project manager.

Given the interest and capacity, EPA may review unvalidated laboratory results and consult Ramboll with items of note. Specific reporting requirements for unvalidated laboratory data are outlined in Section 6.1.

2.3 Data Management Plan Updates

This DMP provides guidance for the transmission, processing, and storage of current and future project data. If this plan does not explicitly address a data management issue, decisions will be made in consultation with the Ramboll Project Manager, Project Coordinator, and data practitioners. If a data management issue affects the content of deliverables, the EPA Remedial Project Manager will also be consulted. These decisions will reflect the purpose and objectives of this plan as described in Section 1.1. This DMP may be revised to incorporate the results of these quality improvement discussions. Revisions or addenda to this document may also be issued if the data management structures or processes for any existing data types are updated as the project progresses, or if additional data types are needed for the project.

3. DATA COLLECTION

3.1 Project Data Types

A variety of data types are to be collected at the Site and managed as specified below.

3.1.1 Field-Collected Data

Field-collected data include samples sent to a laboratory for analysis, recorded field measurements, and field observation notes. Field measurements will include water quality parameters, mercury vapor readings, x-ray fluorescence (XRF) measurements, water levels, meteorological measurements, acid mine drainage (AMD) flowrate, and drone imagery. Rental field measurement equipment will be calibrated by the vendor prior to receipt and operated according to vendor instructions and equipment manuals. Field observation notes should be accompanied with photograph(s) and vice versa, where applicable. Photographs and observations can be noted using configured field data mobile applications to automatically record location data and metadata. Photographs not taken using field data mobile applications should include metadata (e.g., date, time, and location), as well as a description, preferably in a photolog.

The Site is located in a remote area where cellular and internet service are not reliably available. Field staff should download digital forms in the appropriate mobile applications and verify that they are working as intended prior to departure to the Site. Any issues should be communicated in writing to office staff supporting the mobile applications for the relevant field effort.

When available, digital forms and measurement devices will be used to recorded field-collected data, with paper forms available as a back-up should issues arise with digital forms. If paper forms are used when a digital form is available, data will be entered in digital forms on the same day. Data from digital forms, measurement devices, and paper documentation will be uploaded on a daily basis (e.g., the same day as collection), when internet access is available. Data storage is described in Section 4.

Field data with analytical results and field measurements taken in the same instance (e.g., time and place) should be associated with the corresponding unique location identifier or sample identification (ID). This should comprise of a location identifier and date formatted as “YYYYMMDD”. If a soil sample is taken at a specific depth, the depth should be included in the sample ID, placed between the location identifier and the date, and formatted with a decimal point, i.e., as #.#. The location identifier, depth (if applicable), date, and any other sample information (e.g., “FD” for a field duplicate) should be separated by dashes. A sample ID is synonymous with the sample name listed on the chain-of-custody (COC) form for samples sent for laboratory analyses. Other information that should be included on the COC form include sample date and time, matrix, number of containers used for each sample, sampler name, analyses requested, and, if applicable, “RUSH” for time-sensitive samples.

3.1.2 Laboratory Sample Data

Laboratory sample data include analytical results from field samples (e.g., primary samples, duplicate samples, various blank samples) and laboratory quality control samples (e.g., matrix spike samples, laboratory replicate samples).

The Project Manager or Project Coordinator will communicate the anticipated analyses with the Laboratory Project Manager, or delegate this communication, for planned field events in

coordination with the Database Administrator. If possible, COC forms with project information and ordered analyses pre-filled should be requested from the laboratory to minimize possible transcription errors and delays. The Project Coordinator will ensure that sample acknowledgments sent by the laboratory upon receipt of samples will be reviewed in a timely manner.

EDDs provided by the laboratories should be in the EQuIS 4-File EDD format (EFWEDD) as defined by the Ramboll Laboratory Electronic Data Deliverable Format Specification, EQuIS Edition. The EQuIS EDD format specifications are defined in Appendix A. EDDs should be sent to the Database Administrator, the EmeryvilleLabData@ramboll.com email account, and individuals specified on the COC forms.

Laboratories will check that their EDD submittals are consistent with lists of valid values provided in the QAPP. Prior to loading into the database, EDDs will be reviewed for consistency with the file format and valid values. Data collected in the field will also be entered into the database and integrated with laboratory data. EDDs and laboratory reports should be consistent and issued simultaneously; both should be issued if a revision or reanalysis is necessary.

3.1.3 GIS Data

Field data will be documented using a location-based mobile application configured for field data collection, such as Esri Field Maps or Survey123, in conjunction with a high-accuracy global navigation satellite systems (GNSS) receiver for sub-meter location accuracy. All data will be collected in the following geographic coordinate system: World Geodetic Survey 1984 (WGS84; Well-known ID [WKID] 4326). The following projected coordinate system will be used for spatial calculations, such as distance and area: California State Plane Zone 4 (United States [US] feet) based on the North American Datum 1983 (NAD83) (WKID 2228). Data projected to any other geographic or projected coordinate systems should be noted in the feature name and metadata.

3.2 Field Data Collection Methodology

Field parameter measurements may be recorded on paper or digital field forms or in a field notebook. If a digital field form is available, records on paper (if any) will be entered in the digital form within one business day. Table 2 displays required outputs and example equipment models for anticipated data streams.

Table 2. Data Streams and Equipment Output Requirements

Data Stream	Equipment/ Model	Required Output	Required Units and/or Parameter Outputs	Notes
Location of sample, measurement, or observation	Arrow 100+ GNSS receiver or similar	Geographic coordinates	WGS84 Coordinate System	Each location should have a unique location identifier or sample ID based on the investigation area.
Sample information	--	Chain-of-custody	Sample ID, date, time, matrix, sample type, sample start and end depths (if applicable)	This will be included in laboratory-issued EDDs and loaded to EQuIS along with analytical results.

Table 2. Data Streams and Equipment Output Requirements

Data Stream	Equipment/ Model	Required Output	Required Units and/or Parameter Outputs	Notes
Water quality data	YSI ProDSS Multiparameter water quality meter or similar	Record of water quality parameters prior to sampling	Time (24-hr notation), purge volume (mL), pH, conductivity (mS/cm or µS/cm), turbidity, dissolved oxygen (mg/L), temperature (°C), oxidation reduction potential	Notable observations, such as coloration or odor, should be recorded.
Water level	Heron Dipper T2 Water Level Meter or similar	Depth to water from top of casing	Water level measurement to the hundredths of a foot	Groundwater elevation is calculated using the elevation of the top of casing.
Real-time mercury vapor concentration	Jerome J505 or similar	Mercury vapor measurement	$\mu g/m^3$	Real-time mercury vapor measurements are recorded using electronic field forms.
XRF analyzers	Olympus Vanta C Series XRF Analyzer or similar	Log file of measurements for suite of metals	Reading number, location ID, date and time, individual measurements for suite of metals (parts per million) and error factors	Log file will be emailed to EmeryvilleLabData@ramboll.com on the same day as measurement for data processing.
AMD pipe flow data	Hach FLO-DAR flow meter or similar	Log file from FL900 flow logger or similar	Flow velocity, flow depth, flow measurements, system operating data (e.g., battery life, ambient temperature, signal strength)	--
Laboratory analytical results	Laboratory equipment	Laboratory reports and EDDs	EQuIS four-file format (EFWEDD)	--
On-Site meteorological monitoring system	10-meter tower with array of high-quality sensors	Log file of measurements	Wind speed, wind direction, temp, air pressure, precipitation, relative humidity, solar radiation, barometric pressure, precipitation	Evapotranspiration is calculated using outputs.
Drones with spectral cameras	DJI Mavic 2 or similar	Aerial imagery, spectral imagery	Image or raster files	--
Photographs	iPad with Field Maps or digital camera	Digital images	Date, time, and location of photo taken	Photo description optional.

Table 2. Data Streams and Equipment Output Requirements

Data Stream	Equipment/ Model	Required Output	Required Units and/or Parameter Outputs	Notes
Field documentation and observation notes	iPad with Field Maps and/or daily logs	GIS feature with notes or scan of daily logs	Samples taken, inaccessible areas, notable observations	Any modifications to work plans should be noted.

3.3 Data Documents

Data documents from field data collection that are not submitted through field mobile applications (i.e., logbook pages, COC scans, paper field forms, and photos taken outside of mobile applications) will be saved in project folders on SharePoint. The file name of scanned documentation should begin with the date format "YYYY-MM-DD" and follow with a concise description of the contents. For example, scanned field forms from the first week of October 2022 might be named "2022-10-03 to 2022-10-07 Field Forms".

Other data documents, such as log files from flow meters or meteorological monitoring stations, will also be saved on SharePoint.

Data documents from the laboratory will be saved in a "Lab Documents" folder under the appropriate field investigation, which will contain the following types of lab documents: Sample acknowledgments, COCs, EDDs, and laboratory reports.

3.4 Data Processing

All field samples and field measurements will be assigned a task code indicating the field investigation with which they are associated. Field measurements (e.g., XRF measurements, real-time mercury vapor readings, water quality parameters) may be processed and formatted to an EQuIS format for database loading. As noted in Section 3.1.2, analytical EDDs from the laboratory will be provided in the four-file EFWEDD format and processed using EQuIS software. If samples are collected at an established location, such as a monitoring well or drainage pipe, a unique location name (e.g., sys_loc_code) will be added to the EDD during processing.

The data validator will provide an EDD with data qualifiers, reason codes, and validation level columns appended to the data results. The validation data will be applied to the results records in the EQuIS database.

Project maps created for deliverables using ArcGIS Pro or ArcGIS Online will use the California State Plane coordinate system specified in Section 3.1.3. This will automatically project any features added to the map. The GIS Administrator will verify that the appropriate coordinate system is used when preparing deliverables.

4. DATA STORAGE

4.1 Geospatial Data

All geospatial data will use the WGS84 coordinate system, including information collected from Esri Field Maps and Survey123. File geodatabases and features on local drives or internal ArcGIS Online Groups may be used for interim data processing; however, GIS features will be submitted to EPA periodically in static file geodatabases. Analytical and field data will be provided in a cross-tabbed format in the file geodatabases (i.e., one row per location), with data for each analyte in separate columns. These data may be split into multiple feature classes if necessary to keep the tables manageable. Historical aerial imagery will be georeferenced, if possible, and included in the periodic EPA submissions. Specific reporting requirements for geospatial data are outlined in Section 6.1.

4.2 Analytical Data

The analytical data will be managed in an EQuIS® database system maintained by Ramboll. Other types of data, such as water levels and water quality parameters, may also be stored in EQuIS. The database will be maintained on a secure, enterprise-level database server that is backed up regularly. Access to the database will be restricted to authorized users, and data maintained in the database will be provided to EPA in a manner consistent with the requirements of the Administrative Settlement Agreement and Order on Consent for Remedial Investigation and Feasibility Study, CERCLA Docket No. AOC-2014-1 (AOC). The format of EDDs and spatial data deliverables provided to EPA may be modified based on future direction provided by EPA. Analytical data include information about individual results (e.g., chemical names, concentrations, units, detection limits, etc.), individual samples (e.g., sample names, sample collection dates, etc.), and individual sample locations (e.g., location name, location type, etc.). The database also includes fields that track the progression of data through the data processing sequence, from generation to the final stage. Analytical data are stored in uniformly formatted database tables, and internal database rules promote data consistency and usability.

4.3 Document Storage and Management

Project documents, including data documents and historical documents, are stored on SharePoint cloud storage, and will be periodically submitted to EPA. Specific reporting requirements for data documents are outlined in Section 6.1. Data documents include scanned hardcopy field forms, photographs, aerial imagery, laboratory documents, and report tables and figures. Historical documents reviewed by Ramboll are organized using document management software, such as Zotero.

Files involving software that is not directly compatible or may cause synchronization issues with SharePoint, such as ArcGIS Pro projects, are saved on local drives or local servers. Mobile applications used to collect field data may store data on cloud servers used by the application.

5. DATA VERIFICATION

5.1 Verification Standard Operating Procedures

Data verification for field observations should be performed by field staff during or immediately after field work to ensure the accuracy of data entry. Field data collected using mobile applications will be reviewed by office staff for completeness and accuracy in a timely manner, generally on the subsequent day. Any issues or feedback will be communicated to the field staff in writing.

Data verification for analytical results must, at a minimum, include confirmation that: 1) the laboratory analyzed each sample for the correct analytes using the correct methods; 2) the laboratory data packages provide information required for the data to be validated to the required validation level; 3) the EDD is appropriately formatted and completed; and 4) results are delivered with no omissions and are free of errors.

The Database Administrator is responsible for contacting the analytical laboratory about errors and revision requests. Errors in laboratory deliverables, including sample name typos, will be revised by the laboratory.

The EPA Quality Assurance department may have additional comments about the raw lab EDD content (for example, regarding lab QC information), and will coordinate with the Database Administrator to contact the analytical laboratory.

Although data may be correctly transcribed from original field forms or correctly imported to the EQuIS database from raw laboratory EDDs, the original field forms or EDDs may have inaccuracies or illogical entries. Additional verification procedures will include reviewing the data for range/logic errors, or invalid/inconsistent values. The Database Administrator, who should be knowledgeable about the type of data being collected, will be a key contributor to verification of the primary data output for this scenario. Data verification procedures, including queries and scripts, can be developed for this scenario in consideration of the key data elements of concern, such as checking that all monitoring units are consistent, that specific data fields identified as required by the Database Administrator have valid values, etc.

During the data entry, verification, and validation phases, the Database Administrator has overall responsibility for the control and management of the data. The Database Administrator must assure consistency between field forms and the database by noting how and why any changes were made to the data on the original field forms, such as after determining a field form error or discrepancy.

6. DATA REPORTING

6.1 Reporting Requirements

The following reporting requirements will be met through a combination of project schedule planning and data management activities outlined in this document:

- Unvalidated laboratory reports and raw laboratory EDDs will be submitted to EPA via SharePoint within five working days of receipt.
- Validated laboratory data will be published to Scribe.NET within five working days upon the completion of data validation. Data validation will commence upon receipt of all laboratory reports and EDDs from a field mobilization (Site Visit) or monthly (whichever is shorter). Validated laboratory data will be queried from EQuIS and formatted per the Scribe EDD formats for location, sample, analysis, and result information. A view will be provided in the Scribe project that joins these tables.
- Field screening measurements (e.g., water quality parameters, mercury vapor analysis, and XRF data) will be provided in raw format with Site Visit Reports. Site Visit Reports will be submitted to EPA within 45 days of returning from the field.
- Spatial (GIS) data will be submitted to EPA in static file geodatabases to be provided with Monthly Progress Reports and Site Visit Reports. Spatial data other than cross-tabbed analytical data will be provided in static file geodatabases with Site Visit Reports. Cross-tabbed analytical data from environmental samples will be provided in a static file geodatabase with a Monthly Progress Report within 30 working days after the completion of data validation.
- If a satellite telemetry system is installed that successfully transmits real-time monitoring data from the Site (e.g., AMD flow data), Ramboll will prepare a dashboard for viewing by EPA if requested. If no telemetry system is available, quarterly data downloads will be submitted via Site Visit Reports.
- All tabular data will be provided in a spreadsheet format, or format compatible with a spreadsheet.
- Other files, such as historical photographs or images, will be provided to EPA via SharePoint if requested in their native digital format (e.g., jpeg), and if georeferenced, accompanied by the affiliated projection extension. Field photos will be included in Site Visit Reports and other select deliverables in a photo log format (e.g., pdf).
- Historical documents reviewed by Ramboll will be provided to EPA in an online accessible format (e.g., SharePoint).
- Electronic data will be compatible with one or more of the following software packages: Microsoft Office (e.g., Excel, Access, and/or Word), ESRI ArcGIS Online, Scribe.NET, ProUCL, and/or Google Earth. Other file formats such as pdf and txt are acceptable as needed.
- All spatial data collected and maintained will be delivered to EPA with USEPA-compliant metadata, according to the USEPA Metadata Technical Specification (https://www.epa.gov/geospatial/epa-metadata-technical-specification). Minimum metadata for each spatial feature will include:

  - Title
  - Project description
  - Data type (polygon, point, line, etc.)
  - Projection information
  - Text description of feature
  - Text description for each field in the attribute table.
- All final reports will be delivered electronically to EPA, with hardcopy reports following, if requested.

6.2 Reporting Standard Operating Procedures and Protocols

Analytical and sampling data will be kept organized and compiled in an EQuIS database to facilitate creation of data tables along with coordinates of sampling locations. The EQuIS database will conform with applicable best management practices (e.g., for structured query language data). No data will be manually deleted or modified without consent and approval of EPA. Federal geographic data committee standards will guide data storage, and EPA Metadata Technical Specifications will guide metadata creation to ensure ease of use by EPA following delivery.

7. REFERENCES

Ramboll. 2022a. Remedial Investigation and Feasibility Study Work Plan (Version 3), New Idria Mercury Mine Superfund Site, San Benito County, California. May 27.

Ramboll. 2022b. Site-Wide Quality Assurance Project Plan (Version 3), New Idria Mercury Mine Superfund Site, San Benito County, California. May 31.

United States Environmental Protection Agency (EPA). 2022. EPA Metadata Technical Specification. January 19. Accessed July 14, 2022. https://www.epa.gov/geospatial/epa-metadata-technical-specification.

APPENDIX A
EQuIS EDD FORMAT SPECIFICATIONS

Prepared By:
Ramboll US Corporation
Princeton, New Jersey

Date:
January 2019

LABORATORY ELECTRONIC DATA DELIVERABLE FORMAT SPECIFICATION

EQUIS EDITION

RAMBOLL

CONTENTS

ATTACHMENTS

1. GENERAL REQUIREMENTS

Ramboll Corporation has implemented EQuIS from EarthSoft, Inc. as its internal data repository standard. The 4-file format (aka, EFWEDD), including the refinements noted below, is the required format for the delivery of all analytical data to Ramboll. Exceptions may be made to accept the simpler EzEDD format at the discretion of the Ramboll project manager and the data administrator in specific cases (e.g., geotechnical analyses). It is the responsibility of the laboratory to secure the electronic data deliverable in this format from any entities to which analyses are subcontracted.

The generic documentation for these formats is provided as Attachments B & C and will not be repeated in this document.

1.1 Transfer File Format

Electronic Data Deliverables may be transferred as multi-worksheet Excel files or a zipped set of delimited text files.

1.1.1 Text File Format Considerations

1.1.1.1 Character Set

Ramboll US Corporation data files must be provided in the ASCII Character Set. Furthermore, all character information, except for analyte field values, must be provided in UPPER CASE. The analyte field may be provided in mixed case.

1.1.1.2 Record Terminator

Within each data file, the individual records must be terminated by a carriage return (ASCII Character 013).

1.1.1.3 Field Delimiter

Per EarthSoft, the preferred field delimiter is the tab character (ASCII Character 009). Comma (“,”; ASCII Character 044) will also be accepted as a delimiter.

To further ensure the field delimitation, Ramboll requires the inclusion of double quotes (", ASCII Character 034) on either side of text data field values (e.g., "1,2,3-ethane",34.4,"B",10.0). Double quotes must not be placed around numeric values.

1.1.1.4 White Space

All extraneous white space characters (e.g., spaces, tabs, blanks) must be eradicated from the data file. All data fields must be trimmed (i.e., clipped) to remove leading and trailing white space.

1.1.1.5 File Naming Convention

The name of each file must denote:

- Sample Delivery Group (SDG; i.e., lab job) it contains, and
- Role in the EDD

These two details should be delimited by an underscore (ASCII Code 242). See the table below for examples of each section for hypothetical SDG DAY180424:

EDD Component Role	File Name under New Specification	File Name under Old Specification
EFW2FSample	DAY180424_ EFW2FSample.txt	DAY180424.smp
EFW2LabSMP	DAY180424_ EFW2LabSMP.txt	Not used by REH
EFW2LabTST	DAY180424_ EFW2LabTST.txt	DAY180424.tst
EFW2LabRes	DAY180424_ EFW2LabRes.txt	DAY180424.res
EFW2LabBCH	DAY180424_ EFW2LabBCH.txt	DAY180424.bch
Zip File	DAY180424_EFWEDD.zip	Not used by REH

1.1.2 Excel File Format Considerations

EQuIS Data Processor allows the individual sections to be submitted on discrete worksheets within a given Excel workbook.

1.1.2.1 White Space

All extraneous white space characters (e.g., spaces, tabs, blanks) must be eradicated from the data file. All data fields must be trimmed (i.e., clipped) to remove leading and trailing white space.

1.1.2.2 File Naming Convention

Similar to the text files names, the Excel worksheet names must denote:

- Sample Delivery Group (SDG; i.e., lab job) it contains, and
- Role in the EDD

These two details should be delimited by an underscore (ASCII Code 242). See the table below for examples of each section for hypothetical SDG DAY180424:

EDD Component Role	File Name under New Specification
EFW2FSample	DAY180424_ EFW2FSample
EFW2LabSMP	DAY180424_ EFW2LabSMP
EFW2LabTST	DAY180424_ EFW2LabTST
EFW2LabRes	DAY180424_ EFW2LabRes
EFW2LabBCH	DAY180424_ EFW2LabBCH

1.2 Transfer Media

By default, there are 3 acceptable modes of data transfer to Ramboll US Corporation (Ramboll)'s offices, in order of preference:

1. Email to the designated mailbox (e.g., EDDPrinceton@ramboll.com);
2. FTP through lab's system (e.g., LabLink, TotalAccess, PacePort) or REH's One Drive platform;
3. MS-Windows readable media (e.g., CD or USB drive).

Each Sample Delivery Group (SDG) (i.e., data pack) should be packaged separately for transfer.

1.3 Chain of Custody Correspondence

The information provided in the analytical sample results data records must strictly correspond to the information reported to the laboratory on the Chain of Custody. This information may not be altered, have information appended or prefixed to it. For example, if the sample identifier reported on the chain of custody is 1786H-MW01-950501, that is the string which must be returned -- not 1786H-MW01-950501DL, not 1786H-MW01-950501RE. These types of additions are acceptable on the Lab Sample ID.

NOTE: This constraint does not apply for laboratory QC samples that are created by the laboratory from field samples (e.g., Matrix Spike, Lab Duplicates).

1.4 Air Samples

For air samples, both sets of results (by volume and by cubic meter) must be reported. Please append a VOL to the back of the method for the "by volume" (e.g., ppbv) results, so they are not considered duplicate records by the EQuIS Data Processor (EDP) Application.

For example:

sys_sample_code	lab_anl_method_name	cas_rn	result_unit
SG-01-060908	TO15	156-59-2	ug/m3
SG-01-060908	TO15VOL	156-59-2	ppbv
SG-02-060908	TO15	156-59-2	ug/m3
SG-02-060908	TO15VOL	156-59-2	ppbv

1.5 Leachate Samples

To clarify data analysis and reporting, Ramboll requests that the primary lab method (field [lab_anl_method_name]) be amended to highlight the leachate analysis. For TCLP analyses, this should be done by appending an "R" to the end of the method. Similarly, for SPLP, this should be done by appending an "S".

For example:

Lab_anl_method_name	lab_matrix_code	prep_method	leachate_method
SW6020	SO	SW3050B	<null>
SW6020R	WL		SW1311
SW6020S	WL		SW1312

1.6 Analytical limits

Historically, the subject of analytical limits, and what values belong in which field, has been a source of great debate. For Ramboll, the limit fields are defined as follows. ALL of the analytical limit fields are required unless approved, in advance, by Ramboll's data manager.

- ***method_detection_limit***

  This field contains the method detection limit (MDL), which is defined by the laboratory as the minimum concentration of an analyte that, in a given matrix and with a specific method, can be identified, measured, and reported with 99% confidence that the analyte concentration is greater than zero.

  The MDL is operationally defined as MDL = $s*t_{(n-1,\ a=\ 0.99)}$, where:

  s = the standard deviation of n measurements of a blank or sample matrix containing the analyte at a concentration near the lowest standard recommended in the method and

  $t_{(n-1,\ a=\ 0.99)}$ = the one-sided Student t-statistic at the 99% confidence level and n-1 degrees of freedom.

  This parallels the definition of MDL provided by USEPA in the *Guidance for Data Useability in Risk Assessment (Part A) {Section 3.2.4; p 47}*. "The MDL is the minimum amount of an analyte that can be routinely identified using a specific method. The MDL can be calculated from the instrument detection limit (IDL) by using sample size and concentration factors (and assuming 100% analyte recovery)."

- ***reporting_detection_limit***

  This field contains the reporting limit (RL), which is defined by the laboratory as the lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions. This limit is generally at least 5x to 10x the MDL, and is typically based on published "industry standard" or generic regulatory guidance such as SW-846.

  The laboratory also adjusts the RL for dilution and moisture content.

  Example: where RL = 10 ug/kg
  Dilution factor = 2
  Total Solids = 90%
  adjusted RL = 10* 2 / 0.9 = 22 ug/kg.

  This parallels the definition of Practical Quantitation Limit (PQL) provided by USEPA in the *Guidance for Data Useability in Risk Assessment (Part A) {Section 3.2.4; p 47}*. "The PQL, defined in SW846 methods, is the lowest level that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operating conditions."

- ***quantitation_limit***

  According to the laboratory, this field contains method detection limits (MDLs) that have been adjusted for dilution and moisture content.

  This parallels the definition of Sample Quantitation Limit (SQL) provided by USEPA in the *Guidance for Data Useability in Risk Assessment (Part A) {Section 3.2.4; p 47}.* "The SQL is the MDL adjusted to reflect sample-specific action such as dilution or use of a smaller sample aliquot for analysis due to matrix effects or the high concentration of some analytes."

2. EQUIS FORMATS

2.1 Overview

2.2 EQuIS 4-File Record Structures

2.2.1 Sample File

The sample file should contain the required information for all samples, regardless of their source (e.g., field, lab). Information that is not marked required should be provided in all cases where the information is available.

Shaded columns denote fields that are included in the default EQuIS sample loader file but contain information that is generally not provided to the laboratory. For consistency with the import utility, these fields must remain in the EDD; however, population of these fields is not expected.

Pos#	Field Name	Data Type	Required	Comments
1	sys_sample_code	Text(40)	Y	Unique sample identifier. Each sample must have a unique value, including spikes and duplicates. Laboratory QC samples must also have unique identifiers. As noted in Section 1.3 above, for field samples, this should match the value which appears on the chain of custody.
2	sample_name	Text(30)	Y	Standardized sample name across all permutations. It is not required to be unique (i.e., duplicates are OK). As noted in Section 1.3 above, for field samples, this should match the value which appears on the chain of custody.
3	sample_matrix_code	Text(10)	Y	Code which distinguishes between different types of sample matrices. For example, blank samples must be distinguished from ground water samples, etc. See Attachment A of this document for the set of valid values.
4	sample_type_code	Text(20)	Y	Code which distinguishes between different types of samples. For example, normal field samples must be distinguished from laboratory method blank samples, etc. See Attachment A of this document for the set of valid values.
5	sample_source	Text(10)	Y	This field identifies where the sample came from, either **FIELD** or **LAB**.

Pos#	Field Name	Data Type	Required	Comments
6	parent_sample_code	Text(40)	N	The value of "sys_sample_code" that uniquely identifies the sample that was the source of this sample. For example, the value of this field for a duplicate sample would identify the normal sample of which this sample is a duplicate. Required in the laboratory EDD for all laboratory "clone" samples (e.g., spikes and duplicates). Field duplicates may be submitted blind to the laboratory, so this field is not required in the laboratory EDD for field "clones". Must be blank for samples which have no parent (e.g., normal field samples, LCS samples, method blanks, etc.).
7	sample_delivery_group	Text(10)	Y	The lab job identifier, consistent with the labeling on the final report.
8	sample_date	Date	Y	Date sample was collected (in MM/DD/YYYY format for EDD).
9	sample_time	Time	N	Time of sample collection in 24-hr (military) HH:MM format.
10	sys_loc_code	Text(20)	N	Sample collection location.
11	start_depth	Double	N	Beginning depth (top) of soil sample.
12	end_depth	Double	N	Ending depth (bottom) of soil sample.
13	depth_unit	Text(15)	N	Unit of measurement for the sample begin and end depths.
14	chain_of_custody	Text(15)	N	Chain of custody identifier. A single sample may be assigned to only one chain of custody. If the chains are not serialized, please use the collection date of the samples, formatted as YYYYMMDD.
15	sent_to_lab_date	Date	N	Date sample was sent to lab (in MM/DD/YYYY format for EDD).
16	sample_receipt_date	Date	N	Date that sample was received at laboratory (in MM/DD/YYYY format for EDD).
17	sampler	Text(30)	N	Name or initials of sampler.
18	sampling_company_code	Text(10)	N	Name or initials of sampling company (REH = Ramboll Environment and Health).
19	sampling_reason	Text(30)	N	Reason for sampling.
20	sampling_technique	Text(40)	N	Sampling technique.

Pos#	Field Name	Data Type	Required	Comments
21	task_code	Text(10)	N	Code used to identify the task under which the field sample was retrieved.
22	collection_quarter	Text(5)	N	Quarter of the year sample was collected (e.g., "18Q2").
23	composite_yn	Text(1)	N	Boolean field used to indicate whether a sample is a composite sample.
24	composite_desc	Text(255)	N	Description of composite sample.
25	sample_class	Text(10)	N	Reserved for NJEDI sample identifier
26	custom_field_1	Text(255)	N	Custom sample field.
27	custom_field_2	Text(255)	N	Custom sample field.
28	custom_field_3	Text(255)	N	Custom sample field.
29	comment	Text(255)	N	Sample comments as necessary (e.g., broken jar, cooler issues).
30	sample_receipt_time	Text(5)	N	Time of lab receipt sample in 24-hr (military) HH:MM format.

2.2.2 Test File

The test file should contain the required information for all samples, regardless of their source (e.g., field, lab). Information that is not marked required should be provided in all cases where the information is available.

Pos#	Field Name	Data Type	Required	Comments
1	sys_sample_code	Text(40)	Y	Unique sample identifier. Each sample must have a unique value, including spikes and duplicates. Laboratory QC samples must also have unique identifiers. As noted in Section 1.3 above, for field samples, this should match the value which appears on the chain of custody.
2	lab_anl_method_name	Text(35)	Y	Laboratory analytic method name or description.
3	analysis_date	Date	Y	Date of sample analysis in MM/DD/YYYY format.
4	analysis_time	Text(5)	Y	Time of sample analysis in 24-hr (military) HH:MM format.

Pos#	Field Name	Data Type	Required	Comments
5	total_or_dissolved	Text(1)	Y	Type of analysis. Valid values include: "T"=Total analysis; "D"=Dissolved or Filtered analysis; "N"=constituents for which neither "total" nor "dissolved" is applicable. **This differs from the default EQuIS specification, which constrains the use of T and D to metals analyses**.
6	column_number	Text(2)	N	Column identifier for dual column analyses.
7	test_type	Text(10)	Y	Type of test. Valid values include: "INITIAL"; "DILUTION"; "REEXTRACT"; "REANALYSIS". Contact DBA if other values are needed.
8	lab_matrix_code	Text(10)	N	The matrix of the sample as analyzed may be different from the matrix of the sample as retrieved (e.g. leachates).
9	analysis_location	Text(2)	Y	Valid values include: "FI" for field instrument or probe; "FL" for mobile field laboratory analysis; "LB" for fixed-based laboratory analysis. Contact DBA if other values are needed.
10	basis	Text(10)	Y	Valid values include: "WET" for wet-weight basis reporting; "DRY" for dry-weight basis reporting; "NA" where this distinction is not applicable. Contact DBA if other values are needed.
11	container_id	Text(30)	N	Sample container identifier.
12	dilution_factor	Single	N	Effective test dilution factor.
13	prep_method	Text(35)	N	Laboratory sample preparation method name or description.
14	prep_date	Date	N	Date of sample preparation in MM/DD/YYYY. This field, in conjunction with extraction time, is used to determine whether holding times for field samples have been exceeded.

Pos#	Field Name	Data Type	Required	Comments
15	prep_time	Text(5)	N	Time of sample preparation in 24-hr (military) HH:MM format. This field, in conjunction with extraction date, is used to determine whether holding times for field samples have been exceeded.
16	leachate_method	Text(15)	N	Laboratory leachate generation method name or description.
17	leachate_date	Date	N	Date of leachate preparation in MM/DD/YYYY format.
18	leachate_time	Text(5)	N	Time of leachate preparation in 24-hr (military) HH:MM format.
19	lab_name_code	Text(10)	N	Unique identifier of the laboratory. Must be consistent across all projects.
20	qc_level	Text(10)	N	Laboratory QC level associated with the analysis.
21	lab_sample_id	Text(20)	Y	Unique sample ID internally assigned by the laboratory.
22	percent_moisture	Text(5)	N	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% should be reported as "70.1" not as .701.
23	subsample_amount	Text(14)	N	Amount of sample used for test. This is an optional field for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager.
24	subsample_amount_unit	Text(15)	N	Unit of measurement for subsample amount.
25	analyst_name	Text(30)	N	Name or initials of laboratory analyst.
26	instrument_id	Text(50)	N	Instrument identifier.
27	comment	Text(255)	N	Sample comments as necessary (e.g., broken jar, cooler issues).
28	preservative	Text(50)	N	Sample preservative used.
29	final_volume	Text(15)	N	The final amount of the sample after sample preparation.
30	final_volume_unit	Text(15)	N	The unit of measure that corresponds to the final_amount.

Pos#	Field Name	Data Type	Required	Comments
31	Lab_SDG	Text(20)	Y	Sample Delivery Group for this analysis. May differ from the overarching lab job for analyses subcontracted within a lab group.

2.2.3 Batch File

The batch file should contain the required information for all samples, regardless of their source (e.g., field, lab). Information that is not marked required should be provided in all cases where the information is available.

Pos#	Field Name	Data Type	Required	Comments
1	sys_sample_code	Text(40)	Y	Unique sample identifier. Each sample must have a unique value, including spikes and duplicates. Laboratory QC samples must also have unique identifiers. As noted in Section 1.3 above, for field samples, this should match the value which appears on the chain of custody.
2	lab_anl_method_name	Text(35)	Y	Laboratory analytic method name or description.
3	analysis_date	Date	Y	Date of sample analysis in MM/DD/YYYY format.
4	analysis_time	Text(5)	Y	Time of sample analysis in 24-hr (military) HH:MM format.
5	total_or_dissolved	Text(1)	Y	Type of analysis. Valid values include: "T"=Total analysis; "D"=Dissolved or Filtered analysis; **This differs from the default EQuIS specification, which constrains the use of T and D to metals analyses**.
6	column_number	Text(2)	N	Column identifier for dual column analyses.
7	test_type	Text(10)	Y	Type of test. Valid values include: "INITIAL"; "DILUTION"; "REEXTRACT"; "REANALYSIS". Contact DBA if other values are needed.

Pos#	Field Name	Data Type	Required	Comments
8	test_batch_type	Text(10)	Y	Lab batch type. Valid values include: "PREP"; "ANALYSIS"; "LEACH".
9	test_batch_id	Text(20)	Y	Unique identifier for all lab batches. Must be unique within EQuIS Chemistry database. For example, the same identifier cannot be used for a prep batch and an analysis batch.

2.2.4 Result File

The result file should contain the required information for all samples, regardless of their source (e.g., field, lab). Information that is not marked required should be provided in all cases where the information is available.

Pos#	Field Name	Data Type	Required	Comments
1	sys_sample_code	Text(40)	Y	Unique sample identifier. Each sample must have a unique value, including spikes and duplicates. Laboratory QC samples must also have unique identifiers. As noted in Section 1.3 above, for field samples, this should match the value which appears on the chain of custody.
2	lab_anl_method_name	Text(35)	Y	Laboratory analytic method name or description.
3	analysis_date	Date	Y	Date of sample analysis in MM/DD/YYYY format.
4	analysis_time	Text(5)	Y	Time of sample analysis in 24-hr (military) HH:MM format.
5	total_or_dissolved	Text(1)	Y	Type of analysis. Valid values include: "T"=Total analysis; "D"=Dissolved or Filtered analysis; "N"=constituents for which neither "total" nor "dissolved" is applicable. **This differs from the default EQuIS specification, which constrains the use of T and D to metals analyses**.
6	column_number	Text(2)	N	Column identifier for dual column analyses.

Pos#	Field Name	Data Type	Required	Comments
7	test_type	Text(10)	Y	Type of test. Valid values include: "INITIAL"; "DILUTION"; "REEXTRACT"; "REANALYSIS". Contact DBA if other values are needed.
8	cas_rn (CAS_Number)	Text(15)	Y	Unique analyte identifier. Use assigned CAS number when one is identified for an analyte. Tentatively Identified Compounds (TICs) are not assigned a standard CAS number. The laboratory is required to assign a UNIQUE identifier for each TIC. The unique identifier must be placed in this field. Since retention time for TICs are unique per sample and sample analysis method, this information is the recommended value to use as the unique identifier.
9	chemical_name	Text(60)	Y	Chemical name as it appears in the lab pack.
10	result_value	Text(20)	N	Must only be a numeric value. It is stored as a string of characters so that significant digits can be retained. Must be identical with values presented in the hard copy. It must be blank for non-detects.
11	result_error_delta	Text(20)	N	Error range applicable to the result value; typically used only for radiochemistry results.
12	result_type_code	Text(10)	Y	Type of result. Valid values include: "TRG" for a target or regular result; "TIC" for tentatively identified compounds; "SUR" for surrogates; "IS" for internal standards; "SC" for spiked compounds.
13	reportable_result	Text(10)	Y	Valid values include: "YES" for results which are reportable; "NO" for other results. For a given sample/method/analyte combination there should only be ONE result record with YES in the reportable_result field.

Pos#	Field Name	Data Type	Required	Comments
14	detect_flag	Text(2)	Y	Valid values include: "Y" for detected analytes; "N" for non-detects.
15	lab_qualifiers	Text(7)	Y	Qualifier flags assigned by the laboratory in accordance with the CLP SOW documents (e.g., U=non-detect, not ND, not <).
16	organic_yn	Text(1)	Y	Valid values include: "Y" for organic constituents; "N" for inorganic constituents.
17	method_detection_limit	Text(20)	Y	Method Detection Limit (MDL). The MDL is the minimum amount of an analyte that can be routinely identified using a specific method. See discussion in Section 1.6.
18	reporting_detection_limit	Text(20)	Y	Practical Quantitation Limit (PQL) PQL adjusted to reflect sample-specific action. See discussion in Section 1.6.
19	quantitation_limit	Text(20)	Y	Sample Quantitation Limit (SQL). Per USEPA guidance, the SQL is the MDL adjusted to reflect sample-specific action. See discussion in Section 1.6.
20	result_unit	Text(15)	Y	Units of measurement for the result.
21	detection_limit_unit	Text(15)	N	Units of measurement for the detection limit(s).
22	TIC_retention_time	Text(8)	N	For tentatively identified compounds. May be used in the CAS number field to identify individual TICs as long as each retention time per sample per method of analysis is unique.
23	result_comment	Text(255)	N	Any comments related to the analysis.
24	qc_original_conc	Text(14)	N	The concentration of the analyte in the original (unspiked) sample.
25	qc_spike_added	Text(14)	N	The concentration of the analyte added to the original sample.
26	qc_spike_measured	Text(14)	N	The measured concentration of the analyte. Use zero for spiked compounds that were not detected in the sample.

Pos#	Field Name	Data Type	Required	Comments
27	qc_spike_recovery	Text(14)	N	The percent recovery calculated as specified by the laboratory QC program. Report as percentage value (e.g., report "120%" as "120", not 1.2).
28	qc_dup_original_conc	Text(14)	N	The concentration of the analyte in the original (unspiked) sample.
29	qc_dup_spike_added	Text(14)	N	The concentration of the analyte added to the original sample.
30	qc_dup_spike_measured	Text(14)	N	The measured concentration of the analyte in the duplicate.
31	qc_dup_spike_recovery	Text(14)	N	The duplicate percent recovery calculated as specified by the laboratory QC program. Report as percentage value (e.g., report "120%" as "120", not 1.2).
32	qc_rpd	Text(8)	N	The relative percent difference calculated as specified by the laboratory QC program. Report as percentage value (e.g., report "120%" as "120", not 1.2).
33	qc_spike_lcl	Text(8)	N	Lower control limit for spike recovery. Report as percentage value (e.g., report "120%" as "120", not 1.2).
34	qc_spike_ucl	Text(8)	N	Upper control limit for spike recovery. Report as percentage value (e.g., report "120%" as "120", not 1.2).
35	qc_rpd_cl	Text(8)	N	Relative percent difference control limit. Required for any duplicated sample. Report as percentage multiplied by 100 (e.g., report "120%" as "120").
36	qc_spike_status	Text(10)	N	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.
37	qc_dup_spike_status	Text(10)	N	Used to indicate whether the duplicate spike recovery was within control limits. Use the "*" character to indicate failure, otherwise leave blank.

Pos#	Field Name	Data Type	Required	Comments
38	qc_rpd_status	Text(10)	N	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.

2.3 EQuIS EZ Result Import (aka EZEDD)

The EZEDD file should contain the required information for all samples, regardless of their source (e.g., field, lab). Information that is not marked required should be provided in all cases where the information is available.

Pos#	Field Name	Data Type	Required	Comments
1	project_code	Text(20)	Y	Unique identifier assigned to a project site or delivery order.
2	sample_name	Text(30)	Y	Standardized sample name across all permutations. It is not required to be unique (i.e., duplicates are OK). As noted in Section 1.3 above, for field samples, this should match the value which appears on the chain of custody.
3	sys_sample_code	Text(40)	Y	Unique sample identifier. Each sample must have a unique value, including spikes and duplicates. Laboratory QC samples must also have unique identifiers. As noted in Section 1.3 above, for field samples, this should match the value which appears on the chain of custody.
4	sample_date	Date	N	Date sample was collected (in MM/DD/YYYY format for EDD).
5	sample_time	Text(5)	N	Time of sample collection in 24-hr (military) HH:MM format.
6	analysis_location	Text(2)	Y	Valid values include: "FI" for field instrument or probe; "FL" for mobile field laboratory analysis; "LB" for fixed-based laboratory analysis. Contact DBA if other values are needed.
7	lab_name_code	Text(20)	Y	Unique identifier of the laboratory. Must be consistent across all projects.
8	lab_sample_id	Text(20)	Y	Unique sample ID internally assigned by the laboratory.

Pos#	Field Name	Data Type	Required	Comments
9	sample_type_code	Text(20)	Y	Code which distinguishes between different types of samples. For example, normal field samples must be distinguished from laboratory method blank samples, etc. See Attachment A of this document for the set of valid values.
10	lab_del_group	Text(20)	N	The lab job identifier, consistent with the labeling on the final report. Commonly referenced as Sample Delivery Group (SDG).
11	lab_batch_number	Text(20)	N	Sample preparation batch number assigned by the laboratory.
12	lab_anl_method_name	Text(35)	Y	Laboratory analytic method name or description.
13	cas_rn	Text(15)	Y	Unique analyte identifier. Use assigned CAS number when one is identified for an analyte. Tentatively Identified Compounds (TICs) are not assigned a standard CAS number. The laboratory is required to assign a UNIQUE identifier for each TIC. The unique identifier must be placed in this field. Since retention time for TICs are unique per sample and sample analysis method, this information is the recommended value to use as the unique identifier.
14	chemical_name	Text(60)	Y	Chemical name as it appears in the lab pack.
15	result_value	Text(20)	N	Must only be a numeric value. It is stored as a string of characters so that significant digits can be retained. Must be identical with values presented in the hard copy. It must be blank for non-detects.
16	lab_qualifiers	Text(7	N	Qualifier flags assigned by the laboratory in accordance with the CLP SOW documents (e.g., U=non-detect, not ND, not <).
17	result_unit	Text(15)	Y	Units of measurement for the result.
18	result_type_code	Text(10)	Y	Type of result. Valid values include: "TRG" for a target or regular result; "TIC" for tentatively identified compounds; "SUR" for surrogates; "IS" for internal standards; "SC" for spiked compounds.

Pos#	Field Name	Data Type	Required	Comments
19	detect_flag	Text(2)	Y	Valid values include: "Y" for detected analytes; "N" for non-detects.
20	reporting_detection_limit	Text(20)	N	Practical Quantitation Limit (PQL) PQL adjusted to reflect sample-specific action. See discussion in Section 1.6.
21	dilution_factor	Single	N	Effective test dilution factor.
22	sample_matrix_code	Text(10)	Y	Code which distinguishes between different type of sample matrix. For example, blank samples must be distinguished from ground water samples, etc. See Attachment A of this document for the set of valid values.
23	total_or_dissolved	Text(1)	N	Type of analysis. Valid values include: "T"=Total analysis; "D"=Dissolved or Filtered analysis; "N"=constituents for which neither "total" nor "dissolved" is applicable. **This differs from the default EQuIS specification, which constrains the use of T and D to metals analyses**.
24	basis	Text(10)	Y	Valid values include: "WET" for wet-weight basis reporting; "DRY" for dry-weight basis reporting; "NA" where this distinction is not applicable. Contact DBA if other values are needed.
25	analysis_date	Date	N	Date of sample analysis in MM/DD/YYYY format.
26	analysis_time	Text(5)	N	Time of sample analysis in 24-hr (military) HH:MM format.
27	method_detection_limit	Text(20)	N	Method Detection Limit (MDL). The MDL is the minimum amount of an analyte that can be routinely identified using a specific method.
28	lab_prep_method_name	Text(35	N	Description of sample prep or extraction method.

Pos#	Field Name	Data Type	Required	Comments
29	prep_date	Date	N	Date of sample preparation in MM/DD/YYYY. This field, in conjunction with extraction time, is used to determine whether holding times for field samples have been exceeded.
30	prep_time	Text(5)	N	Time of sample preparation in 24-hr (military) HH:MM format. This field, in conjunction with extraction date, is used to determine whether holding times for field samples have been exceeded.
31	test_batch_id	Text(20)	N	Unique identifier for all lab batches. Must be unique within EQuIS Chemistry database. For example, the same identifier cannot be used for a prep batch and an analysis batch.
32	result_error	Text(20)	N	Applicable only when reporting radiological sample results.
33	TIC_retention_time	Text(8)	N	For tentatively identified compounds. May be used in the CAS number field to identify individual TICs as long as each retention time per sample per method of analysis is unique.
34	qc_level	Text(10)	N	Laboratory QC level associated with the analysis.
35	result_comment	Text(255)	N	Any comments related to the analysis.
36	parent_sample_code	Text(40)	N	The value of "sys_sample_code" that uniquely identifies the sample that was the source of this sample. For example, the value of this field for a duplicate sample would identify the normal sample of which this sample is a duplicate. Required in the laboratory EDD for all laboratory "clone" samples (e.g., spikes and duplicates). Field duplicates may be submitted blind to the laboratory, so this field is not required in the laboratory EDD for field "clones". Must be blank for samples which have no parent (e.g., normal field samples, LCS samples, method blanks, etc.).

1690005875-002\PRIN_WP\42943v2

ATTACHMENT A
VALID VALUES
(Available Electronically)

ATTACHMENT B
EARTHSOFT EDD FORMAT DEFINITION - EQUIS CHEMISTRY 4 FILE EDD

EQuIS Chemistry 4 File Import Format (EFWEDD)

EQuIS Chemistry 4 File EDD

Version 11e – 8/23/2004
Provided by EarthSoft, Inc.
Spreadsheet Templates: EFWEDD01.xls
Former Title: Analytical Results - Electronic Data Transfer Format

Table of Contents

EQuIS Chemistry 4 File Import Format (EFWEDD)

Introduction

The purpose of this document is to describe the 4 file import templates available in EQuIS Chemistry. The Electronic Data Deliverable, or EDD, referred to is EFWEDD01.xls. This Microsoft Excel spreadsheet contains 5 tabs, each with a format for importing various data into different parts of the EQuIS Chemistry data structure. Each template has a corresponding import format available by the same name in the EQuIS Chemistry General Import module. It should be noted that, although there are two sample formats, EFW2FSample and EFW2LabSMP, only one should be used, depending on the type of data to be imported. It is also noted that the EDD is simply a data format. EarthSoft distributes the format as a Microsoft Excel document, but it could be created in Lotus or any other spreadsheet. Ultimately, the files that are actually imported into EQuIS Chemistry must be saved from the EDD as text (.txt) or comma-delimited (.csv) files, terminated with a carriage return.

In the following tables, fields with **Y** in the **Req** column are required but are not part of the key. Fields with **Y/K** in the **Req** column are part of the key and are used to determine the uniqueness of the row in the EDD file. The designation "FK (table_name)" in the Description column indicate that the field is a foreign key to the specified table; the data value in this field must exist in the table indicated. Column headers with the names of the fields may be included. A second header line with the column numbers may also be included. The header lines are not required.

Questions about this document or the Geo3EDD may be referred to the EarthSoft Help Desk at help@earthsoft.com.

General Information

File Format

All data from the laboratory must be stored in an ASCII file using the following standard format. Each data field must be either separated by tabs or enclosed in double quotes (") and separated by commas. Data fields with no information may be represented by two commas. Maximum length of text fields is indicated in the parentheses. If the information is less than the maximum length, do not pad the record with spaces.

Each record must be terminated with a carriage return/line feed (i.e., standard DOS text file). The file can be produced using any software with the capability to create ASCII files. Date is reported as MM/DD/YY (month/day/year) and time as HH:MM (hour:minute). Time uses a 24 hour clock, thus 3:30 p.m. will be reported as 15:30.

Four files are required: one each for samples, tests, results, and batches, although the user may choose to utilize the Field Sample import format (EFW2Fsample), for importing field sample data. The filename extensions are used to indicate the file type as follows:

*.SMP for sample rows
*.TST for test rows
*.RES for result rows
*.BCH for batch rows

The character portion of the filenames must be the same for each group of four files. Filename conventions may be defined however the laboratory and EQuIS Chemistry project manger determine. For example, the date, sample delivery group, or project name may be encoded in the filename if desired. Although we anticipate that all four files will be prepared and loaded into EQuIS Chemistry together in one group, this is not necessary. Each file can be loaded separately if desired.

EQuIS Chemistry 4 File Import Format (EFWEDD)

Data Integrity Rules

If a field is to be considered part of the primary key of a table, it is indicated below by the presence of "PK" in the *PK* column. The combination of values in each primary key must be unique within the file. Also, referential integrity must be enforced between tables. That is, the values of `sys_sample_code` present in the Result and Test tables must also be present in the Sample table. Logical relationships between the tables are shown in the entity relationship diagram, which is available from the EarthSoft Help Desk.

The key fields in the test table may appear complicated, so they are discussed further here. The EQuIS Chemistry user has the flexibility to choose uniqueness constraints on the analytic test event table (i.e. `dt_test`). By default, only two fields are defined as part of a unique key: `sys_sample_code` and `lab_anl_method_name`. This means that each combination of sample ID and lab method can be used to uniquely define a lab test event. For example, by default a given combination of sample ID and lab method may have only one analysis date or dilution factor. Other users might wish to store retests or re-dilutions as separate test events. One way to achieve this would be to include `analysis_date` as part of the unique key of `dt_test`. This would allow multiple occurrences of a given combination of sample ID and lab method, provided that analysis date is different for each retest. Other common situations are discussed below. The fields that may be included as part of a unique key on `dt_test` are indicated below by the presence of "PK?" in the *PK* column. If these fields are part of the uniqueness constraint needed by the EQuIS Chemistry user, then they must be required in the EDD. This is indicated by the symbol Y/K? in the *Required* column of the tables shown below.

A. Some EQuIS Chemistry users intend to import the full suite of test level information, including column_ number and analysis_time. Other users do not need these fields. If these two fields are not required by the EQuIS Chemistry user, than this field may be left null (i.e., empty).

B. Some metal analyses can be done on unfiltered samples (to obtain total concentrations) or can be done on filtered samples (to get dissolved concentrations). Some EQuIS Chemistry users may choose to distinguish between these types of tests by using different method names. However, other users need to use the same method name value for both of these tests, and therefore require another field to distinguish between these test types. If the total_or_dissolved field is not required to distinguish these types of tests, than this field may be left null (i.e., empty).

Null Format

Many fields are optional, and the list of valid values may be defined in a project or lab specific manner, as determined by the laboratory and EQuIS Chemistry project manager. When a field is <u>not</u> listed as required, this means that a null or blank may be appropriate. However, the blank value must still be surrounded by commas. In other words, the number of fields is always the same, whether or not the fields include data is optional. Refer to the example below where the second of three fields shown below is considered optional,

"Data-one","Data-two","Data-three",…→OK
"Data-one","Data-three",…→Not OK
"Data-one",,"Data-three",…→OK

EQuIS Chemistry 4 File Import Format (EFWEDD)

Necessary Steps

Several decisions must be made by the lab and by the EQuIS Chemistry users before the EDDs are prepared. These decisions include the following:

1. Decide if analysis_date, test_type, column_number, total_or_dissolved, and analysis_time may be left blank (see above discussion). This decision must apply for the duration of the EQuIS Chemistry project. This decision must correspond to the unique index defined by the user for the project.

2. Decide whether a *controlled vocabulary* is needed for lab_anl_method_name and provide to lab if necessary (EQuIS Chemistry can manage lab_anl_method_name aliases internally, and the lab does not necessarily need to use controlled vocabulary). By controlled vocabulary, we mean an explicit list of valid values for a field. For example, a list of valid analytic method names might include "SW8240" but not "SW-8240" nor "EPA 8240".

3. Decide whether a controlled vocabulary is needed for prep_method and provide to lab if necessary (EQuIS Chemistry can manage prep_method aliases internally, and the lab does not necessarily need to use controlled vocabulary).

4. Select the controlled vocabulary for cas_rn (required by EQuIS Chemistry).

5. Decide whether the following “optional” fields will be required:

   Sample level optional fields
   comment
   sample_date
   sample_time
   sample_receipt_date
   sample_delivery_group
   standard_solution_source
   sample_receipt_time

   Test level optional fields
   lab_matrix_code
   analysis_location
   basis
   container_id
   dilution_factor
   prep_method
   prep_date
   prep_time
   leachate_method
   leachate_date
   leachate_time
   lab_name_code
   qc_level
   lab_sample_id
   percent_moisture
   subsample_amount
   subsample_amount_unit
   analyst_name
   instrument_id
   comment
   preservative

final_volume
final_volume_unit

Result level optional fields
result_error_delta
lab_qualifiers
organic_yn
method_detection_limit
reporting_detection_limit
quantitation_limit
detection_limit_unit
tic_retention_time
result_comment
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
qc_rpd
qc_spike_lcl
qc_spike_ucl
qc_rpd_cl
qc_spike_status
qc_dup_spike_status
qc_rpd_status

EQuIS Chemistry 4 File Import Format (EFWEDD)

Examples

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 result 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 result file for a normal field sample. Notice that QC fields are blank except on surrogate rows. Many users will need to complete only 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 matrix spike (i.e., Sample_type_code = MS)

The following table shows some of the fields in the 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 users will need to complete only the calculated recovery field.

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	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 table on the following page shows some of the fields in the result file for a matrix spike duplicate sample. Notice that all "dup" QC fields are completed, and that the result_value field is not needed. Also, the qc_rpd field would be completed for these rows. Many users will need to complete only the calculated recovery field.

EQuIS Chemistry 4 File Import Format (EFWEDD)

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	4.23	5.70	97.8
94-75-7						3.17	4.23	7.62	105
94-82-6						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 result file for a matrix spike/matrix spike duplicate considered as single sample (they can be reported this way, or as two separate samples as shown above). Notice that all QC fields are completed, and that the result_value field is not needed. Also, the qc_rpd field would be completed for these rows. Many users will need to complete only the calculated recovery field.

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	4.18	5.36	90.9	1.56	4.23	5.70	97.8
94-75-7		3.17	4.18	7.15	95.2	3.17	4.23	7.62	105
94-82-6		2.31	4.22	5.66	79.3	2.31	4.13	5.33	73.1

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

The following table shows some of the fields in the result file for an LCS sample. The qc_rpd field would be blank for these rows. Many users will need to complete only the calculated recovery field. 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				

Retests

The following table shows how to report retests in an example where a sample was retested at dilution. The end user would see the first two constituents (75-25-2, and 67-66-3) in the initial test, and constituent 95-95-4 in the diluted retest. The other results would be "turned off" by setting the reportable_result field to "No". Note that the user might not require this level of detail. In such cases, the rows flagged below as not reportable would not need to be included in the EDD.

Test_type	cas_rn	result_value	reportable_result
initial	75-25-2	1.2	Yes
initial	67-66-3	3.4	Yes
initial	95-95-4	100	No
retest	75-25-2	0	No
retest	67-66-3	0	No
retest	95-95-4	78.3	Yes

Second Columns

The following table shows how to report first and second column confirmation results. The end user would see the first and third constituents (75-25-2, and 95-95-4) as "primary" in the first column, and constituent 67-66-3 as "primary" in the second column. The other results would be "turned off" by setting the reportable_result field to "No". Note that the user might not require this level of detail. In such cases, the rows flagged below as not reportable would not need to be included in the EDD, and the test could be set to "NA".

test_type	cas_rn	result_value	reportable_result
1C	75-25-2	1.2	Yes
1C	67-66-3	3.4	No
1C	95-95-4	5.6	Yes
2C	75-25-2	1.3	No
2C	67-66-3	3.7	Yes
2C	95-95-4	5.4	No

EQuIS Chemistry 4 File Import Format (EFWEDD)

Field Sample Import Format

Pos#	Field Name	DataType	PK	Required	Field Definition
1	sys_sample_code	Text(40)	PK	Y/K	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 Chem 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 Chem.
2	sample_name	Text(30)		N	Additional sample identification information as necessary. Is not required to be unique (i.e., duplicates are OK).
3	sample_matrix_code	Text(10)		Y	Code which distinguishes between different type of sample matrix. For example, soil samples must be distinguished from ground water samples, etc. IRPIMS-style sample matrix codes are understood by Chem, and other valid sample types can be added by the Chem user. 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 required at both the sample and test level.
4	sample_type_code	Text(20)		Y	Code which distinguishes between different types of samples. For example, normal field samples must be distinguished from laboratory method blank samples, etc. IRPIMS-style sample type codes (see table X01-SA) are understood by Chem, and other valid sample
5	sample_source	Text(10)		Y	This field identifies where the sample came from, either **Field** or **Lab**.
6	parent_sample_code	Text(40)		N	The value of "sys_sample_code" that uniquely identifies the sample that was the source of this sample. For example, the value of this field for a duplicate sample would identify the normal sample of which this sample is a duplicate. Required in the laboratory EDD for all laboratory "clone" samples (e.g., spikes and duplicates). Field duplicates may be submitted blind to the laboratory, so this field is not required in the laboratory EDD for field "clones". Must be blank for samples which have no parent (e.g., normal field samples, LCS samples, method blanks, etc.).

EQuIS Chemistry 4 File Import Format (EFWEDD)

Pos#	Field Name	DataType	PK	Required	Field Definition
7	sample_delivery_group	Text(10)		N	Sample delivery group as defined by Chem project manager. This is an optional field for the laboratory EDD unless otherwise specified by the Chem project manager.
8	sample_date	Date		N	Date sample was collected (in MM/DD/YY format for EDD).
9	sample_time	Time		N	Time of sample collection in 24-hr (military) HH:MM format.
10	sys_loc_code	Text(20)		N	Sample collection location.
11	start_depth	Double		N	Beginning depth (top) of soil sample. This is an optional field for the laboratory EDD unless otherwise specified by the Chem project manager.
12	end_depth	Double		N	Ending depth (bottom) of soil sample. This is an optional field for the laboratory EDD unless otherwise specified by the Chem project manager.
13	depth_unit	Text(15)		N	Unit of measurement for the sample begin and end depths. IRPIMS-style unit of measurement codes (see table X03) are recognized by Chem; other codes may be allowed by the Chem project manager. This is an optional field for the laboratory EDD unless otherwise specified by the Chem project manager.
14	chain_of_custody	Text(15)		N	Chain of custody identifier. A single sample may be assigned to only one chain of custody. This is an optional field for laboratory EDD unless otherwise specified by the Chem project manager.
15	sent_to_lab_date	Date		N	Date sample was sent to lab (in MM/DD/YY format for EDD). Not included in the laboratory EDD.
16	sample_receipt_date	Date		N	Date that sample was received at laboratory (in MM/DD/YY format for EDD).
17	sampler	Text(30)		N	Name or initials of sampler. Not included in the laboratory EDD.
18	sampling_company_code	Text(10)		N	Name or initials of sampling company (no controlled vocabulary). Not included in the laboratory EDD.
19	sampling_reason	Text(30)		N	Optional reason for sampling. No controlled vocabulary is enforced. Not included in the laboratory EDD.

EQuIS Chemistry 4 File Import Format (EFWEDD)

Pos#	Field Name	DataType	PK	Required	Field Definition
20	sampling_technique	Text(40)		N	Sampling technique (no controlled vocabulary). Not included in the laboratory EDD.
21	task_code	Text(10)		N	Code used to identify the task under which the field sample was retrieved. This is an optional field for laboratory EDD unless otherwise specified by the Chem project manager.
22	collection_quarter	Text(5)		N	Quarter of the year sample was collected (e.g., "1Q96") Not included in the laboratory EDD.
23	composite_yn	Text(1)		N	Boolean field used to indicate whether a sample is a composite sample. Not included in the laboratory EDD.
24	composite_desc	Text(255)		N	Description of composite sample (if composite_yn is YES). Not included in the laboratory EDD.
25	sample_class	Text(10)		N	Navy sample class code. Not included in the laboratory EDD.
26	custom_field_1	Text(255)		N	Custom sample field
27	custom_field_2	Text(255)		N	Custom sample field
28	custom_field_3	Text(255)		N	Custom sample field
29	comment	Text(255)		N	Sample comments as necessary (optional).
30	sample_receipt_time	Text(5)		N	Time of lab receipt sample in 24-hr (military) HH:MM format

Sample Import Format

Pos#	Field Name	DataType	PK	Required	Field Definition
1	sys_sample_code	Text(40)	PK	Y/K	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	sample_type_code	Text(20)		Y	Code which distinguishes between different types of sample. For example, normal field samples must be distinguished from laboratory method blank samples, etc. IRPIMS-style sample type codes (see table X01) are understood by EQuIS Chemistry, and other valid sample types can be added by the

EQuIS Chemistry 4 File Import Format (EFWEDD)

Pos#	Field Name	DataType	PK	Required	Field Definition
					EQuIS Chemistry user. Field sample types (e.g., field duplicates, field blanks, etc.) might be submitted blind to the laboratory; in such cases the laboratory may report all field samples as if they were all normal field samples. The laboratory is not required to export data for a spike if a spike duplicate is exported (unless the EQuIS Chemistry project manager requests all spikes).
3	sample_matrix_code	Text(10)		Y	Code which distinguishes between different types of sample matrix. For example, soil samples must be distinguished from ground water samples, etc. IRPIMS-style sample matrix codes (see table X02) are understood by EQuIS Chemistry, and other valid sample types can be added by the EQuIS Chemistry user. 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 required at the sample level.
4	sample_source	Text(10)		Y	Must be either "Field" for field samples or "Lab" for internally generated laboratory QC samples. No other values are allowed. For example, a matrix spike duplicate sample would be a "Lab" sample, while its parent (i.e., the field sample it was derived from) would be a "Field" sample.
5	parent_sample_code	Text(40)		N	The value of "sys_sample_code" that uniquely identifies the sample that was the source of this sample. For example, the value of this field for a duplicate sample would identify the normal sample of which this sample is a duplicate. Required in the laboratory EDD for all laboratory "clone" samples (e.g., spikes and duplicates). Field duplicates may be submitted blind to the laboratory, so this field is not required in the laboratory EDD for field "clones". Must be blank for samples which have no parent (e.g., normal field samples, LCS samples, method blanks, etc.). This field must be filled out for those samples which have "parents".
6	comment	Text(255)		N	Sample comments as necessary (optional).
7	sample_date	Date		N	Date of sample collection in MM/DD/YY format. Must be blank for laboratory samples.
8	sample_time	Text(5)		N	Time of sample collection in 24-hr (military) HH:MM format. Must be blank for laboratory samples.
9	sample_receipt_date	Date		N	Date that sample was received at laboratory in MM/DD/YY format. Must be blank for laboratory samples.

EQuIS Chemistry 4 File Import Format (EFWEDD)

Pos#	Field Name	DataType	PK	Required	Field Definition
10	sample_delivery_group	Text(10)		N	Sample delivery group as defined by EQuIS Chemistry project manager. This is an optional field for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager. Must be blank for laboratory samples.
11	standard_solution_ source	Text(20)		N	Relevant only for laboratory-generated samples. Textual description of the source of standard solutions as needed for certain laboratory samples (e.g., LCS). Optional as far as the EQuIS Chemistry database is concerned, although it could possibly be required from the laboratory for certain projects. Must be blank for field samples.
12	sample_receipt_time	Text(5)		N	Time that sample was received at laboratory in 24-hr (military) HH:MM format. Must be blank for laboratory samples.

Test Import Format

Pos#	Field Name	DataType	PK	Required	Field Definition
1	sys_sample_code	Text(40)	PK	Y/K	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)	PK	Y/K	Laboratory analytic method name or description. A controlled vocabulary (i.e., list of valid method names) is not required for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager. The method name should be sufficient to reflect operation of the laboratory. For example both "SW8080-pest" and "SW8080-PCB" may be necessary to distinguish between laboratory methods, while "SW8080" may not provide sufficient detail.
3	analysis_date	Date	PK?	Y/K?	Date of sample analysis in MM/DD/YY format. May refer to either beginning or end of the analysis as required by EQuIS Chemistry project manager. This field is not always required, but most users will want it.
4	analysis_time	Text(5)	PK?	Y/K?	Time of sample analysis in 24-hr (military) HH:MM format. May refer to either beginning or

EQuIS Chemistry 4 File Import Format (EFWEDD)

Pos#	Field Name	DataType	PK	Required	Field Definition
					end as required by EQuIS Chemistry project manager. This field might be required, depending on the test primary key used by the EQuIS Chemistry user. Note that this field, combined with the "analysis_date" field is used to distinguish between retests and reruns (if reported). Please ensure that retests have "analysis_date" and/or "analysis_time" different from the original test event (and fill out the test_type field as needed).
5	total_or_dissolved	Text(1)	PK?	Y/K?	If required, then it must be either "T" for total [metal] concentration, "D" for dissolved or filtered [metal] concentration, or "N" for organic (or other) constituents for which neither "total" nor "dissolved" is applicable. This field might be required, depending on the test primary key used by the EQuIS Chemistry user.
6	column_number	Text(2)	PK?	Y/K?	If required, then it must be either "1C" for first column analyses, "2C" for second column analyses, or "NA" for analyses for which neither "1C" nor "2C" is applicable. Second column data may not be required, depending on the needs identified by the EQuIS Chemistry project manager, in which case all results may be reported as "NA". However, if any "2C" tests are reported, then there must be corresponding "1C" tests present also. Also, laboratories typically can report which of the two columns is to be considered "primary". This distinction is handled by the "reportable_result" field in the result table. This field might be required, depending on the test primary key used by the EQuIS Chemistry user.
7	test_type	Text(10)	PK?	Y/K?	Type of test. Valid values include "initial", "reextract", and "reanalysis".
8	lab_matrix_code	Text(10)		N	Code which distinguishes between different type of sample matrix. For example, soil samples must be distinguished from ground water samples, etc. IRPIMS-style sample matrix codes (see table X02) are understood by EQuIS Chemistry, and other valid sample types can be added by the EQuIS Chemistry user. 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.
9	analysis_location	Text(2)		N	If required, then it must be either "FI" for field instrument or probe, "FL" for mobile field laboratory analysis, or "LB" for fixed-based laboratory analysis.

EQuIS Chemistry 4 File Import Format (EFWEDD)

Pos#	Field Name	DataType	PK	Required	Field Definition
10	basis	Text(10)		N	If required, then it 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 EQuIS Chemistry project manager may require that all results must be reported under a particular basis.
11	container_id	Text(30)		N	Sample container identifier. This is an optional field for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager.
12	dilution_factor	Single		N	Effective test dilution factor.
13	prep_method	Text(35)		N	Laboratory sample preparation method name or description. A controlled vocabulary (i.e., list of valid method names) is not required for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager. The method name should be sufficient to reflect operation of the laboratory (see analysis method discussion).
14	prep_date	Date		N	Date of sample preparation in MM/DD/YY format. May refer to either beginning or end as required by EQuIS Chemistry project manager.
15	prep_time	Text(5)		N	Time of sample preparation in 24-hr (military) HH:MM format. May refer to either beginning or end as required by EQuIS Chemistry project manager.
16	leachate_method	Text(15)		N	Laboratory leachate generation method name or description. A controlled vocabulary (i.e., list of valid method names) is not required for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager. The method name should be sufficient to reflect operation of the laboratory (see analysis method discussion).
17	leachate_date	Date		N	Date of leachate preparation in MM/DD/YY format. May refer to either beginning or end as required by EQuIS Chemistry project manager.
18	leachate_time	Text(5)		N	Time of leachate preparation in 24-hr (military) HH:MM format. May refer to either beginning or end as required by EQuIS Chemistry project manager.
19	lab_name_code	Text(10)		N	Unique identifier of the laboratory as defined by the EQuIS Chemistry project manager.
20	qc_level	Text(10)		N	Data validation QC level. This is an optional field

EQuIS Chemistry 4 File Import Format (EFWEDD)

Pos#	Field Name	DataType	PK	Required	Field Definition
					for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager. EQuIS Chemistry does not enforce a controlled vocabulary on the values of this field, although a list of valid values may optionally be provided by the EQuIS Chemistry project manager.
21	lab_sample_id	Text(20)		N	Laboratory LIMS sample identifier. Required. If necessary, a field sample may have more than one LIMS lab-sample-id (maximum one per each test event).
22	percent_moisture	Text(5)		N	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%". This is an optional field for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager.
23	subsample_amount	Text(14)		N	Amount of sample used for test. This is an optional field for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager.
24	subsample_amount_unit	Text(15)		N	Unit of measurement for subsample amount. IRPIMS-style unit of measurement codes (see table X02) are recognized by EQuIS Chemistry; other codes may be allowed by the EQuIS Chemistry project manager. This is an optional field for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager. This is an optional field for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager.
25	analyst_name	Text(30)		N	Name or initials of laboratory analyst. This is an optional field for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager.
26	instrument_id	Text(50)		N	Instrument identifier. This is an optional field for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager.
27	comment	Text(255)		N	Comments about the test as necessary. This is an optional field for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager.

EQuIS Chemistry 4 File Import Format (EFWEDD)

Pos#	Field Name	DataType	PK	Required	Field Definition
28	preservative	Text(50)		N	Sample preservative used.
29	final_volume	Text(15)		N	The final amount of the sample after sample preperation.
30	final_volume_unit	Text(15)		N	The unit of measure that corresponds to the final_amount.

Result Import Format

#	Field Name	Type	PK	Required	Field Definition
1	sys_sample_code	Text(40)	PK	Y/K	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)	PK	Y/K	Laboratory analytic method name or description. A controlled vocabulary (i.e., list of valid method names) is not required for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager. The method name should be sufficient to reflect operation of the laboratory. For example both "SW8080-pest" and "SW8080-PCB" may be necessary to distinguish between laboratory methods, while "SW8080" may not provide sufficient detail.
3	analysis_date	Date	PK?	Y/K?	Date of sample analysis in MM/DD/YY format. May refer to either beginning or end of the analysis as required by EQuIS Chemistry project manager. This field is not always required, but most users will want it.
4	analysis_time	Text(5)	PK?	Y/K?	Time of sample analysis in 24-hr (military) HH:MM format. May refer to either beginning or end as required by EQuIS Chemistry project manager. This field might be required, depending on the test primary key used by the EQuIS Chemistry user. Note that this field, combined with the "analysis_date" field is used to distinguish between retests and reruns (if reported). Please ensure that retests have "analysis_date" and/or "analysis_time" different from the original test event (and fill out the test_type field as needed).

EQuIS Chemistry 4 File Import Format (EFWEDD)

#	Field Name	Type	PK	Required	Field Definition
5	total_or_dissolved	Text(1)	PK?	Y/K?	If required, then it must be either "T" for total [metal] concentration, "D" for dissolved or filtered [metal] concentration, or "N" for organic (or other) constituents for which neither "total" nor "dissolved" is applicable. This field might be required, depending on the test primary key used by the EQuIS Chemistry user.
6	column_number	Text(2)	PK?	Y/K?	If required, then it must be either "1C" for first column analyses, "2C" for second column analyses, or "NA" for analyses for which neither "1C" nor "2C" is applicable. Second column data may not be required, depending on the needs identified by the EQuIS Chemistry project manager, in which case all results may be reported as "NA". However, if any "2C" tests are reported, then there must be corresponding "1C" tests present also. Also, laboratories typically can report which of the two columns is to be considered "primary". This distinction is handled by the "reportable_result" field in the result table. This field might be required, depending on the test primary key used by the EQuIS Chemistry user.
7	test_type	Text(10)	PK?	Y/K?	Type of test. Valid values include "initial", "reextract", and "reanalysis".
8	cas_rn	Text(15)	PK	Y	Chemical Abstracts Registry Number for the parameter if available. Otherwise use the IRPIMS PARLABEL. Other chemical identifier codes may be allowed by the EQuIS Chemistry project manager.
9	chemical_name	Text(60)		Y	Chemical name is used only in review of EDD. The cas-rn field is the only chemical identity information actually imported in EQuIS Chemistry.
10	result_value	Text(20)		N	Analytic result reported at an appropriate number of significant digits. May be blank for non-detects.
11	result_error_delta	Text(20)		N	Error range applicable to the result value; typically used only for radiochemistry results. This is an optional field for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager.
12	result_type_code	Text(10)		Y	Must be either "TRG" for a target or regular result, "TIC" for tentatively identified compounds, "SUR" for surrogates, "IS" for internal standards, or "SC" for spiked compounds. Not all of these result types may be required, depending on the needs of the EQuIS Chemistry project manager.

EQuIS Chemistry 4 File Import Format (EFWEDD)

#	Field Name	Type	PK	Required	Field Definition
13	reportable_result	Text(10)		Y	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). Also, the EQuIS Chemistry project manager can also use this field as needed. For example, benzene may be detected by several test methods requested for a sample, all but one can be flagged as not reportable if desired.
14	detect_flag	Text(2)		Y	Maybe either "Y" for detected analytes or "N" for non-detects. At the request of the EQuIS Chemistry project manager, other valid values may be used as necessary. These include "TR" for trace (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).
15	lab_qualifiers	Text(7)		N	Qualifier flags assigned by the laboratory. This is an optional field for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager. EQuIS Chemistry does not enforce a controlled vocabulary on the values of this field, although a list of valid values may optionally be provided by the EQuIS Chemistry project manager.
16	organic_yn	Text(1)		N	If required, then it must be either "Y" for organic constituents or "N" for inorganic constituents.
17	method_detection_limit	Text(20)		N	Method detection limit. This is an optional field for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager.
18	reporting_detection_limit	Text(20)		N	Detection limit that reflects conditions such as dilution factors and moisture content. Required for all results for which such a limit is appropriate.
19	quantitation_limit	Text(20)		N	Concentration level above which results can be quantified with confidence. It must reflect conditions such as dilution factors and moisture content. Required for all results for which such a limit is appropriate. This is an optional field for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager.
20	result_unit	Text(15)		Y	units of measurement for the result. IRPIMS-style unit of measurement codes (see table X02) are

EQuIS Chemistry 4 File Import Format (EFWEDD)

#	Field Name	Type	PK	Required	Field Definition
					recognized by EQuIS Chemistry; other codes may be allowed by the EQuIS Chemistry project manager.
21	detection_limit_unit	Text(15)		N	units of measurement for the detection limit(s). IRPIMS-style unit of measurement codes (see table X02) are recognized by EQuIS Chemistry; other codes may be allowed by the EQuIS Chemistry project manager.
22	tic_retention_time	Text(8)		N	Retention time in seconds for tentatively identified compounds. This is an optional field for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager.
23	result_comment	Text(255)		N	Result specific comments.
24	qc_original_conc	Text(14)		N	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).
25	qc_spike_added	Text(14)		N	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).
26	qc_spike_measured	Text(14)		N	The measured concentration of the analyte. Use zero for spiked compounds that were not detected in the sample. Might b required for spikes, spike duplicates, surrogate compounds, LCS and any spiked sample (depending on user needs).
27	qc_spike_recovery	Text(14)		N	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").
28	qc_dup_original_conc	Text(14)		N	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).
29	qc_dup_spike_added	Text(14)		N	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,

EQuIS Chemistry 4 File Import Format (EFWEDD)

#	Field Name	Type	PK	Required	Field Definition
					surrogate compounds, LCS and any spiked sample. Also complete the qc_spike_added field.
30	qc_dup_spike_measured	Text(14)		N	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.
31	qc_dup_spike_recovery	Text(14)		N	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").
32	qc_rpd	Text(8)		N	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 "120%" as "120").
33	qc_spike_lcl	Text(8)		N	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 "120%" as "120").
34	qc_spike_ucl	Text(8)		N	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").
35	qc_rpd_cl	Text(8)		N	Relative percent difference control limit. Required for any duplicated sample. Report as percentage multiplied by 100 (e.g., report "120%" as "120").
36	qc_spike_status	Text(10)		N	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.
37	qc_dup_spike_status	Text(10)		N	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.

EQuIS Chemistry 4 File Import Format (EFWEDD)

#	Field Name	Type	PK	Required	Field Definition
38	qc_rpd_status	Text(10)		N	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.

Batch Import Format

#	Field Name	Column Datatype	PK	Required	Field Definition
1	sys_sample_code	Text(40)	PK	Y/K	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)	PK	Y/K	Laboratory analytic method name or description. A controlled vocabulary (i.e., list of valid method names) is not required for the laboratory EDD unless otherwise specified by the EQuIS Chemistry project manager. The method name should be sufficient to reflect operation of the laboratory. For example both "SW8080-pest" and "SW8080-PCB" may be necessary to distinguish between laboratory methods, while "SW8080" may not provide sufficient detail.
3	analysis_date	Date	PK?	Y/K?	Date of sample analysis in MM/DD/YY format. May refer to either beginning or end of the analysis as required by EQuIS Chemistry project manager. This field is not always required, but most users will want it.
4	analysis_time	Text(5)	PK?	Y/K?	Time of sample analysis in 24-hr (military) HH:MM format. May refer to either beginning or end as required by EQuIS Chemistry project manager. This field might be required, depending on the test primary key used by the EQuIS Chemistry user. Note that this field, combined with the "analysis_date" field is used to distinguish between retests and reruns (if reported). Please ensure that retests have "analysis_date" and/or "analysis_time" different from the original test event (and fill out the test_type field as needed).
5	total_or_dissolved	Text(1)	PK?	Y/K?	If required, then it must be either "T" for total [metal] concentration, "D" for dissolved or filtered [metal] concentration, or "N" for organic (or other) constituents for which neither "total" nor "dissolved" is applicable. This field might be required, depending

EQuIS Chemistry 4 File Import Format (EFWEDD)

#	Field Name	Column Datatype	PK	Required	Field Definition
					on the test primary key used by the EQuIS Chemistry user.
6	column_number	Text(2)	PK?	Y/K?	If required, then it must be either "1C" for first column analyses, "2C" for second column analyses, or "NA" for analyses for which neither "1C" nor "2C" is applicable. Second column data may not be required, depending on the needs identified by the EQuIS Chemistry project manager, in which case all results may be reported as "NA". However, if any "2C" tests are reported, then there must be corresponding "1C" tests present also. Also, laboratories typically can report which of the two columns is to be considered "primary". This distinction is handled by the "reportable_result" field in the result table. This field might be required, depending on the test primary key used by the EQuIS Chemistry user.
7	test_type	Text(10)	PK?	Y/K?	Type of test. Valid values include "initial", "reextract", and "reanalysis".
8	test_batch_type	Text(10)	PK	Y	Lab batch type. Valid values include "Prep", "Analysis", and "Leach". Additional valid values may optionally be provided by the EQuIS Chemistry project manager. This is a required field for all batches.
9	test_batch_id	Text(20)		Y	Unique identifier for all lab batches. Must be unique within EQuIS Chemistry database. For example, the same identifier can not be used for a prep batch and an analysis batch. The EQuIS Chemistry project manager and the laboratory have the flexibility to devise a scheme to ensure unique values of this field. The EQuIS Chemistry project manager will determine which, if any, batch types are to be required in the EDD.

EQuIS Chemistry 4 File Import Format (EFWEDD)

EDD File To EQuIS Chemistry Table Distribution

EFW2FSample

EQuIS Chemistry Table	Field	Field#	Required by EQuIS	Reference Table/Values
dt_sample (parent table)	Sys_Sample_Code	1	T	
	Sample_Name	2	F	
	Sample_Matrix_Code	3	T	rt_matrix
	Sample_Type_Code	4	T	rt_sample_type
	Sample_Source	5	T	Field or Lab (set by Import)
	Parent_Sample_Code	6	F	
	Sample_Class	25	F	
	Custom_Field_1	26	F	
	Custom_Field_2	27	F	
	Custom_Field_3	28	F	
	Comment	29	F	
dt_field_sample (parent table)	Sys_Sample_Code	1	T	dt_sample
	Sample_Delivery_Group	7	F	
	Sample_Date	8	F	
	Sample_Time	9	F	
	Sys_Loc_Code	10	F	
	Start_Depth	11	F	
	End_Depth	12	F	
	Depth_Unit	13	F	rt_unit
	Chain_of_Custody	14	F	
	Sent_to_Lab_Date	15	F	
	Sample_Receipt_Date	16	F	
	Sampler	17	F	
	Sampling_Company_Code	18	F	
	Sampling_Reason	19	F	
	Sampling_Technique	20	F	
	Task_Code	21	F	
	Collection_Quarter	22	F	
	Composite_YN	23	F	
	Composite_Desc	24	F	
	Sample_Receipt_Time	30	F	
dt_lab_sample (parent table)	Sys_Sample_Code (Field OR Lab sample will be created, depending on Sample Type	1	T	dt_sample
dt_location	sys_loc_code	10	F	
dt_task	task_code	21	F	
dt_chain_of_custody	chain_of_custody	14	F	

EQuIS Chemistry 4 File Import Format (EFWEDD)

EFW2LabSMP

EQuIS Chemistry Table	Field	Field#	Required by EQuIS	Reference Table/Values
dt_sample	Sys_Sample_Code	1	T	
(primary table)	Sample_Type_Code	2	T	rt_sample_type
	Sample_Matrix_Code	3	T	rt_matrix
	Sample_Source	4	F	Field or Lab (set by Import)
	Parent_Sample_Code	5	F	dt_sample
	Comment	6	F	
dt_field_sample	Sys_Sample_Code	1	T	dt_sample
(child table)	Sample_Date	7	F	
	Sample_Time	8	F	
	Sample_Receipt_Date	9	F	
	Sample_Delivery_Group	10	F	
	Sample_Receipt_Time	12	F	
dt_lab_sample	Sys_Sample_Code	1	T	dt_sample
(child table)	Standard_Solution_Source (Field OR Lab sample will be created, depending on Sample Type)	11	F	

EFW2LabTST

EQuIS Chemistry Table	Field	Field#	Required by EQuIS	Reference Table/Values
dt_sample	Sys_Sample_Code	1	T	
	Sample_Source	n/a		Field or Lab (set by Import)
dt_test	Sys_Sample_Code	1	T	dt_sample
(primary table)	Lab_Anl_Method_Name	2	T	rt_anl_mthd_var rt_std_analytic_method
	Analysis_Date	3	opt. Key fld	
	Analysis_Time	4	opt. Key fld	
	Total_Or_Dissolved	5	opt. Key fld	T, D or N
	Column_Number	6	opt. Key fld	(may be set as Default)
	Test_Type	7	opt. Key fld	rt_test_type
	Lab_Matrix_Code	8	F	rt_matrix
	Analysis_Location	9	F	FI, FL or LB
	Basis	10	F	Wet, Dry or NA
	Container_Id	11	F	
	Dilution_Factor	12	F	
	Lab_Prep_Method_Name	13	F	rt_prep_mthd_var rt_std_prep_method
	Prep_Date	14	F	
	Prep_Time	15	F	
	Leachate_Method	16	F	
	Leachate_Date	17	F	
	Leachate_Time	18	F	
	Lab_Name_Code	19	F	rt_subcontractor

EQuIS Chemistry 4 File Import Format (EFWEDD)

EQuIS Chemistry Table	Field	Field#	Required by EQuIS	Reference Table/Values
dt_test	QC_Level	20	F	
(continued)	Lab_Sample_Id	21	F	
	Percent_Moisture	22	F	
	Subsample_Amount	23	F	
	Subsample_Amount_Unit	24	F	rt_unit
	Analyst_Name	25	F	
	Instrument_Id	26	F	
	Comment	27	F	
	Preservative	28	F	
	Final_Volume	29	F	
	Final_Volume_Unit	30	F	rt_unit

EFW2LabRES

EQuIS Chemistry Table	Field	Field#	Required by EQuIS	Reference Table/Values
dt_test	Sys_Sample_Code	1	T	dt_sample
(parent table)	Lab_Anl_Method_Name	2	T	rt_anl_mthd_var rt_std_analytic_method
	Analysis_Date	3	opt. Key fld	
	Analysis_Time	4	opt. Key fld	
	Total_Or_Dissolved	5	opt. Key fld	T, D or N
	Column_Number	6	opt. Key fld	(may be set as Default)
	Test_Type	7	opt. Key fld	rt_test_type
dt_result	Sys_Sample_Code	1	T	dt_sample
(primary table)	Lab_Anl_Method_Name	2	T	rt_anl_mthd_var rt_std_analytic_method
	Analysis_Date	3	opt. Key fld	
	Analysis_Time	4	opt. Key fld	
	Total_Or_Dissolved	5	opt. Key fld	T, D or N
	Column_Number	6	opt. Key fld	(may be set as Default)
	Test_Type	7	opt. Key fld	rt_test_type
	Cas_Rn	8	T	rt_analyte
	Result_Value	10	F	
	Result_Error_Delta	11	F	
	Result_Type_Code	12	F	rt_result_type
	Reportable_Result	13	F	Yes or No
	Detect_Flag	14	F	Y, N, TR or <
	Lab_Qualifiers	15	F	
	Organic_YN	16	F	Y or N
	Method_Detection_Limit	17	F	
	Reporting_Detection_Limit	18	F	
	Quantitation_Limit	19	F	
	Result_Unit	20	F	rt_unit
	Detection_Limit_Unit	21	F	
	TIC_Retention_Time	22	F	
	Result_Comment	23	F	
	QC_Original_Conc	24	F	
	QC_Spike_Added	25	F	

EQuIS Chemistry 4 File Import Format (EFWEDD)

EQuIS Chemistry Table	Field	Field#	Required by EQuIS	Reference Table/Values
dt_result	QC_Spike_Measured	26	F	
(continued)	QC_Spike_Recovery	27	F	
	QC_Dup_Original_Conc	28	F	
	QC_Dup_Spike_Added	29	F	
	QC_Dup_Spike_Measured	30	F	
	QC_Dup_Spike_Recovery	31	F	
	QC_RPD	32	F	
	QC_Spike_LCL	33	F	
	QC_Spike_UCL	34	F	
	QC_RPD_CL	35	F	
	QC_Spike_Status	36	F	
	QC_Dup_Spike_Status`	37	F	
	QC_Rpd_Status	38	F	
none	Chemical_Name	16	F	

EFW2LabBCH

EQuIS Chemistry Table	Field	Field#	Required by EQuIS	Reference Table/Values
dt_test	Sys_Sample_Code	1	T	dt_sample
(parent table)	Lab_Anl_Method_Name	2	T	rt_anl_mthd_var rt_std_analytic_method
	Analysis_Date	3	opt. Key fld	
	Analysis_Time	4	opt. Key fld	
	Total_Or_Dissolved	5	opt. Key fld	T, D or N
	Column_Number	6	opt. Key fld	(may be set as Default)
	Test_Type	7	opt. Key fld	rt_test_type
dt_test_batch	Test_Batch_Type	8	T	rt_test_batch_type
(Child table)	Test_Batch_Id	9	T	
dt_test_batch_assign	Sys_Sample_Code	1	T	dt_sample
(Subsidiary table)	Lab_Anl_Mthd_Name	2	T	rt_anl_mthd_var rt_std_analytic_method
	Analysis_Date	3	opt. Key fld	
	Analysis_Time	4	opt. Key fld	
	Total_Or_Dissolved	5	opt. Key fld	T, D or N
	Column_Number	6	opt. Key fld	(may be set as Default)
	Test_Type	7	opt. Key fld	rt_test_type
	Test_Batch_Type	8	T	
	Test_Batch_Id	9	T	

EQuIS Chemistry 4 File Import Format (EFWEDD)

Table X01 - Sample Types

Sample_type_code	Sample_type_desc
AB	Ambient Conditions Blank
BD	Blank Spike Duplicate
BS	Blank Spike
BSD	Blank Spike and Duplicate considered as one sample
EB	Equipment Blank
FD	Field Duplicate
FR	Field Replicate
FS	Field Spike
KD	Known (External Reference Material) Duplicate
LB	Lab Blank
LR	Lab Replicate
MB	Material Blank
MS	Lab Matrix Spike
MSD	Lab Matrix Spike and Spike Duplicate pair considered as one sample
N	Normal Environmental Sample
RB	Material Rinse Blank
RD	Regulatory Duplicate
RM	Known (External Reference Material)
SD	Lab Matrix Spike Duplicate
TB	Trip Blank

EQuIS Chemistry 4 File Import Format (EFWEDD)

Table X02 - Matrix Codes

Matrix_code	Matrix_desc
AA	Ambient Air
AD	Drilling Air
AE	Air, Vapor Extraction Well Effluent
AQ	Air Quality Control Matrix
CA	Cinder-Ash
CF	Fly Ash Cinder
DC	Drill Cuttings
GE	Gaseous Effluent (Stack Gas)
GL	Headspace of Liquid Sample
GS	Soil Gas
LA	Aqueous Phase of a Multiple Phase Liquid or Solid Sample
LC	Liquid Condensate
LD	Drilling Fluid
LE	Liquid Emulsion
LF	Floating/Free Product on Groundwater Table
LH	Free-Flowing, or Liquid Waste Containing Less Than 0.5% Dry Solids
LM	Multiple Phase Liquid Waste Sample
LO	Organic Liquid
LV	Liquid from Vadose Zone
MH	Hazardous Multiple Phase Waste
SB	Bentonite
SC	Cement
SD	Drill Cuttings, Solid Matrix
SE	Sediment (Associated with Surface Water)
SF	Filter Sandpack
SH	Solid Waste Containing greater than or equal to 0.5% Dry Solids
SL	Sludge
SM	Water Filter (Solid Material used to filter Water)
SN	Miscellaneous Solid Materials - Building Materials
SO	Soil
SP	Casing (PVC, Stainless Steel, Cast Iron, Iron Piping, etc.)
SQ	Soil/Solid Quality Control Matrix
SR	Water Filter Residue (Solid that gets filtered out of Water)
SS	Scrapings
ST	Solid Waste
SW	Swab or Wipe
TA	Animal Tissue
TP	Plant Tissue
TQ	Tissue Quality Control Matrix
U	Unknown
W	Water
WA	Drill Cuttings, Aqueous Matrix
WC	Drilling Water (Used for Well Construction)
WD	Well Development Water
WE	Estuary
WG	Ground Water
WH	Equipment Wash Water, i.e., Water used for Washing

EQuIS Chemistry 4 File Import Format (EFWEDD)

WL	Leachate
WO	Ocean Water
WP	Drinking Water
WQ	Water Quality Control Matrix
WS	Surface Water
WV	Water From Vadose Zone
WW	Waste Water
WZ	Special Water Quality Control Matrix

EQuIS Chemistry 4 File Import Format (EFWEDD)

Table X03 - Unit of Measure

Reported_unit	Unit_desc
%v/v	percent by volume
1/s	per second
acre ft	acre feet
acres	acres
admi color	admi (american dye manufacturers institute) color units
bars	bars
cfs	cubic feet per second
cfu/100ml	colony forming units per 100 milliliters
cfu/g	colony forming units per gram
cfu/ml	colony forming units per milliliters
cm	centimeters
cm/hr	centimeters per hour
cm/sec	centimeters per second
cm/yr	centimeters per year
cm2/sec	square centimeters per second
colf/100ml	coliform bacteria per 100 milliliters
colf/g	coliform bacteria per gram
color unit	color unit
day	days
deg c	degrees celsius
deg c/hr	degrees celsius per hour
deg f	degrees fahrenheit
digits	number of digits to the right of the decimal point
dollars	dollars
dpy	drums per year
dynes/cm	dynes per centimeter
fibers/l	fibers per liter
ft	feet
ft candles	foot candles
ft msl	feet above mean sea level
ft/day	feet per day
ft/in	feet per inch
ft/min	feet per minute
ft/sec	feet per second
ft2	square feet
ft2/day	square feet per day (cubic feet/day-foot)
ft2/min	feet squared per minute (for units of transmissivity)
ft3	cubic feet
ft3/yr	cubic feet per year
g/cc	grams per cubic centimeter
g/g	grams per gram
g/kg	grams per kilogram
g/l	grams per liter
g/m2/yr	grams per square meter per year
g/ml	grams per milliliter
gal	gallons
gal/min	gallons per minute

EQuIS Chemistry 4 File Import Format (EFWEDD)

gpd	gallons per day
gpd/ft	gallons per day per foot
gpd/ft2	gallons per day per foot squared
gpm/ft	gallons per minute per foot
gpy	gallons per year
hrs	hours
hrs/day	hours per day
in	inches
in(hg)	inches of mercury
in/day	inches per day
in/ft	inches per foot
in/hr	inches per hour
in/in	inches per inch
in/wk	inches per week
in2/ft	square inches per foot
jcu	jackson candle units
jtu	jackson turbidity units
kg/1000gal	kilograms per 1000 gallons
kg/batch	kilograms per batch
kg/day	kilograms per day
kg/m3	kilogram per meter cubed
kg/m3/s	kilogram per meter cubed per second
kg/s	kilogram per second
km2	square kilometers
knots	knots
lb/1000lb	pounds per thousand pounds
lb/barrel	pound per barrel
lb/in2	pounds per square inch
lb/ton	pounds per ton
lbs	pounds
lbs/day	pounds per day
lbs/mon	pounds per month
lbs/yr	pounds per year
m	meter
m/day	meters per day
m/s	meter per second
m2	meter squared
m2/s	meter squared per second
m3 x 10(6)	meter cubed (in millions)
m3/kg	meter cubed per kilogram
m3/s	meter cubed per second
meq/100g	milliequivalents per 100 grams
mg/100cm2	Milligrams per 100 square centimeters
mg/flt	Milligrams per filter
mg/g	Milligrams per gram
mg/kg	milligrams per kilogram
mg/l	milligrams per liter
mg/m2	milligrams per square meter
mg/m2/day	milligrams per meter squared per day
mg/m3	milligrams per cubic meter (ppbv)

EQuIS Chemistry 4 File Import Format (EFWEDD)

mg/ml	milligrams per milliliter
mgal	million gallons
mgd	millions of gallons per day
mgdo/l	milligrams dissolved oxygen per liter
mgm	millions of gallons per month
mgy	millions of gallons per year
mile2	square miles
miles	miles
mill ft3	million feet cubed
millivolts	millivolts
min	minutes
ml	milliliter
ml/l	milliliter per liter
mm	millimeter
mm/m2/hr	millimeter per meter squared per hour
mm/yr	millimeter per year
mmhos/cm	milliohms (mmhos) per centimeter
mol %	mole percent
mon	month
mph	miles per hour
mpn/100ml	most probable number per 100 ml
ms/cm	microsiemens per centimeter
naut.mile	nautical mile
ng/100cm2	nanograms per 100 square centimeters
ng/g	nanograms per gram
ng/kg	nanogram per kilogram
ng/l	nanogram per liter
ng/m3	nanogram per cubic meter
ng/ml	nanograms per milliliter
none	no unit of measure
ntu	nephelometric turbidity units
pcf	pounds per cubic foot
pci/g	picocuries per gram
pci/l	picocuries per liter
pci/ml	picocuries per milliliters
per loss	percent loss
percent	percent
pg/g	picogram per gram
pg/kg	picograms per kilogram
pg/l	picogram per liter
pg/m3	picograms per cubic meter
pg/ul	picograms per microliter
ph units	ph units
ppb	parts per billion
ppbv	parts per billion by volume
ppm	parts per million
ppmv	parts per million by volume
pptv	parts per trillion by volume
psf	pounds per square foot
psi	pounds per square inch

EQuIS Chemistry 4 File Import Format (EFWEDD)

s	second
t.o.n.	threshold order number
tons/acre	tons per acre
tons/day	tons per day
ug/100cm2	micrograms per 100 square centimeters
ug/cm2	microgram per square centimeters
ug/g	micrograms per gram
ug/kg	micrograms per killogram
ug/l	micrograms/liter
ug/m3	micrograms per cubic meter
ug/yr	micrograms per year
um/sec	micrometer per second
umhos/cm	umhos per centimeter
upy	units per year

EQuIS Chemistry 4 File Import Format (EFWEDD)

Revision History

Version 11e – 08/23/2004

- Removed statement that file naming should be in DOS 8.3 format.

Version 11d – 02/16/2004

- Added reference to rt_test_type in EFW2LabTST and EFW2LabRES formats
- Changed sample_type_code from Text(10) to Text(20) in EFW2FSample format.

Version 11c - 11/1/2001

- Changed rt_lab to rt_subcontractor
- Added EFW2Fsample tab to the EFWEDD01.xls spreadsheet template

Version 11b

- Expanded Null field example
- Removed values in result_value column for LCS example.
- Added sample_receipt_time to list of sample optional fields, sample table field description, and EQuIS Chemistry Table Distribution.
- Added preservative, final_volume, and final_volume_unit to list of test optional fields, test table field description, and EQuIS Chemistry Table Distribution.

Version 11a

- Added EDD file to EQuIS Chemistry table distribution map

Version 11

- Added ability to use tab-separated ASCII format as an option. This is a relaxation of the specification.
- Mentioned ability to load files separately (rather than as a group).
- Defined the term "controlled vocabulary" and provided a simple example.
- Added consideration of the need for analysis-date and test-type to Step 1.
- Clarified discussion of the need for QC fields. Basically, most users will need only the calculated recovery fields for QC result rows. The fields which contain spike concentrations added or measure are not always needed, depending on user needs. However, the calculated recoveries are very important for QC, and should always be present.
- Moved this revision section to the end of the document.
- Indicated that analysis-date is an optional member of the test-level primary key, but that most users will want it. This is a relaxation of the specification.

Version 10 - 9/24/1997

- Added several examples.

Version 9 - 7/18/1997

- Corrected numerous spelling errors.
- Clarified language: changed "not null" to "required" for fields that are always required in the EDD.
- Clarified language: In the discussion of optional test level fields, optional key fields may be left blank rather than filled with an asterisk (removed contradictory instructions in previous draft).
- Corrected error on cas_rn column width (should be 15 instead of 75).
- Corrected apparent contradiction in lab_matrix_code definition: this field was not flagged as "required", but the text of the indicated that it was required. This is an optional field.

EQuIS Chemistry 4 File Import Format (EFWEDD)

- Clarified language: changed "Must be..." to "If required, then it must be..." for the following optional or sometimes optional fields: total-or-dissolved, column-number, analysis-location, basis, and organic-yn.

Version 8 - 6/6/1997

- Increased analysis and prep method name field from 15 to 35 characters. This is a relaxation of the specification.
- Clarified discussion of optional test level fields.
- Increased comment fields to 255 characters. This is a relaxation of the specification.
- Added field position number (#) to tables for clarity.

Version 7

- The test_type valid values for the test, result, and batch level definitions specified below were changed to conform to the 10-character limit: "initial", "reextract", and "reanalysis".
- The cas_rn field was moved to position 8 in the result file definition below.
- The test-batch-type field was moved to position 8 in the batch file definition below.
- Moved the cas_rn field in the enclosed Access MDB file to position 8 in the result table.
- Moved the test-batch-type field in the enclosed Access MDB file to position 8 in the batch table (from position 2).

Version 6

- Included “not null” information for those fields which must always be filled out.
- Clarified and corrected certain field definitions: analysis_time, total_or_dissolved, total-or-dissolved, and column-number
- Corrected datatype error for chemical_name and test_type fields.
- Expanded discussion below for “optional” fields

Version 5

- Version 4 included a surrogate key approach for the test table that paralleled the structure of the project database. Upon further reflection, this seems to have been an error - it may be difficult for laboratories to prepare surrogate key values. Version 5 removed the surrogate key in test by using data columns to be the primary key, which means these columns are also propagated down to the result table. The current Version 6 does not include the mistaken surrogate key approach.

ATTACHMENT C
EARTHSOFT EDD FORMAT DEFINITION - EQUIS CHEMISTRY SIMPLE IMPORT FORMATS

EarthSoft - EDD Format Definition

EQuIS Chemistry Simple Import Formats

EDD Version 3.1, 30 March 2004
Document Version 3.4, 30 March 2004
Prepared by EarthSoft, Inc.
Spreadsheet Template: EZ Formats.xls

Table of Contents

Introduction

The purpose of this document is to describe the 'simple' import templates and formats available in EQuIS Chemistry. The Electronic Data Deliverable, or EDD, referred to is EZ Formats.xls. This Microsoft Excel spreadsheet contains 3 tabs, each with a format for importing various data into different parts of the EQuIS Chemistry data structure. Each template has a corresponding import format available by the same name in the EQuIS Chemistry General Import module. It should be noted that, technically, the EDD is simply a data format. EarthSoft distributes the format as a Microsoft Excel document, but it could be created in Lotus or any other spreadsheet. Ultimately, the files that are actually imported into EQuIS Chemistry must be saved from the EDD as text (.txt) or comma-delimited (.csv) files, terminated with a carriage return.

In the following tables, fields with **Y** in the **Req** column are required but are not part of the key. Fields with **Y/K** in the **Req** column are part of the key and are used to determine the uniqueness of the row in the EDD file. A **/K?** indicates that the field may be part of the import's key if it is set up for the project as a required field. This applies to key fields in the dt_test table that are set in the System Administration module's Project Maintenance function, when the project is created.

All data to be imported into EQuIS Chemistry must be stored in an ASCII file using the following standard format. The data fields may be separated from each other by either tabs or commas. Whichever separator is used must be used consistently throughout the given EDD file. If commas are used, then each data field must be enclosed in double quotes (“). Data fields with no information may be represented by two tabs (or commas). For example, if “Analysis Date” has no value and commas are used, the record might look like this:

“12345”,,”12:50”,”MSD”,”2222”,... (and so on)

Maximum length of the field is listed under “DataType” column. If the information is less than the maximum length, do not pad the record with spaces. In the example above, even though “Project Number” can accommodate up to 20 characters, only 5 characters are included in the record.

EarthSoft - EDD Format Definition

EQuIS Chemistry Simple Import Formats

Each record must be terminated with a carriage return. The file can be produced using any software with the capability to create ASCII files. Date is reported as MM/DD/YY or MM/DD/YYYY (month/day/year) and time as HH:MM (hour:minute). Time uses a 24 hour clock, thus 3:30 p.m. will be reported as 15:30.

Lookup table indicates the use of controlled values contained in the listed table. In EQuIS the actual table name will have a prefix of **rt_**.

Questions about this document or the EZ Formats EDD may be referred to the EarthSoft Help Desk at **help@earthsoft.com**.

EQuIS Chemistry Simple Import Formats

EQuIS_UST Import Format

Strict adherence to the specifications in this document is mandatory.

Pos#	Field Name	DataType	Req.	Lookup Table	Description
1	sys_sample_ code	Text40	Y/K		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	sample_type_ code	Text20	Y	sample_type	Code which distinguishes between different types of samples. For example, normal field samples must be distinguished from laboratory method blank samples, etc.
3	sample_matrix_ code	Text10	Y	matrix	Code which distinguishes between different types of sample matrix. For example, soil samples must be distinguished from ground water samples, etc.
4	sample_date	Date	N		Date sample was collected (in MM/DD/YYYY format for EDD).
5	sample_time	Text5	N		Time of sample collection in 24-hr (military) HH:MM format.
6	sys_loc_code	Text20	N		Soil boring or well installation location. * Field should be null if field QC sample (e.g., field blank, trip blank, etc.)
7	lab_name_code	Text20	Y	subcontractor	Unique identifier of the laboratory.
8	lab_anl_ method_name	Text35	Y/K	anl_mthd_var	Laboratory analytic method name or description. The method name should be sufficient to reflect operation of the laboratory. For example both "SW8080-pest" and "SW8080-PCB" may be necessary to distinguish between laboratory methods, while "SW8080" may not provide sufficient detail.
9	analysis_date	Date	Y/K?		Date sample was analyzed (in MM/DD/YYYY format for EDD).
10	test_type	Text10	Y/K?	test_type	Type of test. Typical values may include initial, reextract, reanalysis, dilution1, dilution2, etc.
11	lab_sample_id	Text20	Y		Unique sample Id internally assigned by the

EQuIS Chemistry Simple Import Formats

Pos#	Field Name	DataType	Req.	Lookup Table	Description
					laboratory.
12	basis	Text10	Y		Enter “Wet” for wet-weight basis reporting, “Dry” for dry-weight basis reporting, or “NA” for tests which this distinction is not applicable.
13	cas_rn	Text15	Y/K	analyte	Unique analyte identifier. Use assigned CAS number when one is identified for an analyte. Tentatively Identified Compounds (TICs) are not assigned a standard CAS number. The laboratory is required to assign a UNIQUE identifier for each TIC. The unique identifier must be placed in this field. Since retention time for TICs are unique per sample and sample analysis method, this information is the recommended value to use as the unique identifier.
14	chemical_name	Text60	Y		Name of analyte or parameter analyzed.
15	result_value	Text20	N		Must only be a numeric value. It is stored as a string of characters so that significant digits can be retained. Must be identical with values presented in the hard copy. Analytical result is reported left justified. It may be blank for non-detects.
16	result_unit	Text15	Y	unit	This format assumes that the result value and detect limit have the same units.
17	detect_flag	Text2	Y		Enter “Y” for detected analytes or “N” for non-detected analytes.
18	reporting_ detection_limit	Text20	Y	unit	Must only be a numeric value. Use the value of the Reported Detection Limit (RDL), Practical Quantitation Limit (PQL), or Contract Required Quantitation Limit. Value is stored as a string to retain significant figures. Unit of measure must be identical with the “Result Unit” field.
19	lab_qualifiers	Text7	N	qualifiers	Qualifier flags assigned by the laboratory. This is an optional field for the laboratory EDD unless otherwise specified by the EQuIS project manager. EQuIS does not enforce a controlled vocabulary on the values of this field, although a list of valid values may optionally be provided by the EQuIS project manager.
20	result_comment	Text20	N		Result comment.

EQuIS Chemistry Simple Import Formats

EDD File To EQuIS Table Distribution

EQuIS Table	Field	Field#	Required by EQuIS	Reference Table/Values
dt_result	sys_sample_code	1	T	
	lab_anl_method_name	8	T	rt_anl_method_var
	analysis_date	9	T	
	cas_rn	13	T	rt_analyte
	result_value	15	F	
	result_unit	16	T	rt_unit
	detect_flag	17	T	
	reporting_detection_limit	18	T	
	lab_qualifiers	19	F	rt_qualifiers
	result_comment	20	F	
dt_test	sys_sample_code	1	T	
	lab_name_code	7	T	rt_subcontractor
	lab_anl_method_name	8	T	rt_anl_method_var
	analysis_date	9	F	
	test_type	10	T	rt_test_type
	lab_Sample_id	11	T	
	basis	12	T	
dt_test_batch_ assign	sys_sample_code	1	T	
	lab_anl_method_name	8	T	rt_anl_method_var
	analysis_date	9	F	
dt_sample	sys_sample_code	1	T	
	sample_type_code	2	T	rt_sample_type
	sample_matrix_code	3	T	rt_matrix
dt_field_sample	sys_sample_code	1	T	
	sample_date	4	F	
	sample_time	5	F	
	sys_loc_code	6	F	
dt_lab_sample	sys_sample_code	1	T	
none	chemical_name	14	T	

EQuIS_UST Revision History

Draft 1.0 (11/25/2002

- initial version

EZ Result Import (EZEDD)

Version 1.2k, 3/30/2004
Provided by EarthSoft, Inc.

EQuIS Chemistry Simple Import Formats

Spreadsheet Template: EZ Formats.xls (EZEDD Tab)
Former Title: Analytical Results - Electronic Data Transfer Format (EZEDD Format)

Strict adherence to the specifications in this document is mandatory.

Pos#	Field Name	DataType	Req.	Lookup Table	Description
1	project_code	Text20	N		Unique identifier assigned to a project site or delivery order
2	sample_name	Text30	Y		This field contains the sample number as written in the Analysis Request and Chain of Custody (AR/COC) form sent to the laboratory with the field samples for analysis. This is a unique number assigned to each sample by sampling personnel. It is critical to the operation of EQuIS (TM) that sample numbers appearing on the AR/COC form be identical with the entry in this field. For laboratory blanks or samples, use the unique laboratory sample id.
3	sys_sample_code	Text40	Y/K		Uniquely identifies a field or lab sample. For field samples, use the Field Sample Id. For laboratory blanks or samples, the laboratory may use Lab Sample Id only if the Lab Sample Id is unique. Otherwise, the lab must come up with a way to generate a unique lab sample id to be entered in this field.
4	sample_date	Date	N		Date sample was collected in the field in mm/dd/yyyy format. Date information must be identical with the date from the AR/COC form. Leave blank for lab samples. Year may be entered as yy.
5	sample_time	Text5	N		Time sample was collected in the field in hh:mm format (24-hour clock, e.g. 3:40 pm is 15:40). Time information must be identical with the time from the AR/COC form. Leave blank for lab samples.
6	analysis_ location	Text2	Y		Must be either "FI" for field instrument or probe, "FL" for mobile field laboratory analysis, or "LB" for fixed-based laboratory analysis.
7	lab_name_code	Text20	Y	subcontractor	Laboratory that performed the analysis.
8	lab_sample_id	Text20	Y		Unique sample ID internally assigned by the laboratory.

EQuIS Chemistry Simple Import Formats

Pos#	Field Name	DataType	Req.	Lookup Table	Description
9	sample_type_ code	Text20	Y	sample_type	Specifies sample type. For field samples, enter N (regular environmental sample). Otherwise, use values listed in the sample type reference table. For example, normal field samples must be distinguished from laboratory method blank samples, etc. IRPIMS-style sample type codes are understood by EQuIS, and other valid sample types can be added by the EQuIS user. Field sample types (e.g., field duplicates, field blanks, etc.) might be submitted blind to the laboratory; in such cases the laboratory may report all field samples as if they were all normal field samples. The laboratory is not required to export data for a spike if a spike duplicate is exported (unless the EQuIS project manager requests all spikes).
10	lab_del_group	Text20	N		Tracking code used by the laboratory. Most commonly called Sample Delivery Group Id (SDG).
11	lab_batch_ number	Text20	N		Tracking number used by the laboratory to identify a group of samples analyzed in the same batch. This field, in conjunction with laboratory blank id, is used to link the relationship between field samples and laboratory blank and other QC samples.
12	lab_anl_ method_name	Text35	Y/K	anl_mthd_var	Test method used in the analysis of the analyte.
13	cas_rn (CAS_Number)	Text15	Y	analyte	Unique analyte identifier. Use assigned CAS number when one is identified for an analyte. Tentatively Identified Compounds (TICs) are not assigned a standard CAS number. The laboratory is required to assign a UNIQUE identifier for each TIC. The unique identifier must be placed in this field. Since retention time for TICs are unique per sample and sample analysis method, this information is the recommended value to use as the unique identifier.
14	chemical_name	Text60	Y		Name of analyte or parameter analyzed.
15	result_value	Text20	N		Must only be a numeric value. It is stored as a string of characters so that significant digits can be retained. Must be identical with values presented in the hard copy. Analytical result is reported left justified.

EQuIS Chemistry Simple Import Formats

Pos#	Field Name	DataType	Req.	Lookup Table	Description
					It may be blank for non-detects.
16	lab_qualifiers	Text7	N		Qualifier flags assigned by the laboratory. This is an optional field for the laboratory EDD unless otherwise specified by the EQuIS project manager. EQuIS does not enforce a controlled vocabulary on the values of this field, although a list of valid values may optionally be provided by the EQuIS project manager.
17	result_unit	Text15	Y	unit	This format assumes that the result value and detect limit have the same units.
18	result_type_ code	Text10	Y	result_type	Type of result (TIC, target analyte, etc.)
19	detect_flag	Text2	Y		Enter “Y” for detected analytes or “N” for non-detected analytes.
20	reporting_ detection_limit	Text20	N		Must only be a numeric value. Use the value of the Reported Detection Limit (RDL), Practical Quantitation Limit (PQL), or Contract Required Quantitation Limit. Value is stored as a string to retain significant figures. Unit of measure must be identical with the “Result Unit” field.
21	dilution_factor	Single	N		Must be a numeric entry. The factor by which the sample was diluted as part of the preparation process. If no dilution was done, enter the value 1. Value is stored as a string to retain significant figures.
22	sample_matrix_ code	Text10	Y	matrix	Code which distinguishes between the different type of sample matrix. For example, soil samples must be distinguished from ground water samples, etc. IRPIMS-style sample matrix codes are understood by EQuIS, and other valid sample types can be added by the EQuIS user. The matrix of the sample as analyzed may be different from the matrix of the sample as retrieved (e.g., TCLP) but this EDD asks only for the matrix as sampled.
23	total_or_ dissolved	Text1	N/K?		Must be “T” for total metal concentration, “D” for dissolved or filtered metal concentration, or “N” for organic (or other) parameters for which neither “total” nor “dissolved” is applicable.
24	basis	Text10	Y		Enter “Wet” for wet-weight basis reporting, “Dry” for dry-weight basis reporting, or “NA”

EQuIS Chemistry Simple Import Formats

Pos#	Field Name	DataType	Req.	Lookup Table	Description
					for tests for which this distinction is not applicable.
25	analysis_date	Date	N/K?		Date sample was analyzed in mm/dd/yy format.
26	analysis_time	Text5	N/K?		Time sample was analyzed in hh:mm format (24-hour clock, e.g. 3:40pm is 15:40).
27	method_ detection_limit	Text20	N		Must be a numeric value. Use the Method Detection Limit (MDL) for Organic compounds, or the Instrument Detection Limit (IDL) for Inorganic compounds. The value is stored as a string of characters in order to retain significant digits. Unit of measure must be identical with the "Result Unit" field.
28	lab_prep_ method_nName	Text35	N	prep_mthd_var	Description of sample preparation or extraction method.
29	prep_date	Date	N		mm/dd/yy. This field, in conjunction with extraction time, is used to determine whether holding times for field samples have been exceeded.
30	prep_time	Text5	N		hh:mm. This field, in conjunction with extraction date, is used to determine whether holding times for field samples have been exceeded.
31	test_batch_id	Text20	N		Sample preparation batch number assigned by the laboratory.
32	result_error	Text20	N		Applicable only when reporting radiological sample results
33	TIC_retention_ time	Text8	N		For tentatively identified compounds. May be used in the CAS number field to identify individual TICs as long as each retention time per sample per method of analysis is unique.
34	qc_level	Text10	N		Laboratory QC level associated with the analysis
35	result_comment	Text255	N		Any comments related to the analysis.
36	parent_sample_ code	Text40	N		The value of "sys_sample_code" that uniquely identifies the sample that was the source of this sample.

EQuIS Chemistry Simple Import Formats

EDD File To EQuIS Table Distribution

EQuIS Table	Field	Field#	Required by EQuIS	Reference Table/Values
dt_sample	Sample_Name	2	F	
(parent table)	Sys_Sample_Code	3	T	
	Sample_Type_Code	9	T	rt_sample_type
	Sample_Matrix_Code	22	T	rt_matrix
	Parent_Sample_Code	36	F	dt_sample
	Sample_Source	n/a		Field or Lab (set by Import)
dt_field_sample	Sys_Sample_Code	3	T	dt_sample
(parent table)	Sample_Date	4	F	
	Sample_Time	5	F	
	Sample_Time	9	F	
dt_lab_sample	Sys_Sample_Code	3	T	dt_sample
(parent table)	(Field OR Lab sample will be created, depending on Sample Type			
dt_test	Sys_Sample_Code	3	T	dt_sample
(parent table)	Analysis_Location	6	F	FI, FL or LB
	Lab_Name_Code	7	F	rt_subcontractor
	Lab_Sample_Id	8	F	
	Lab_Anl_Method_Name	12	T	rt_anl_mthd_var rt_std_analytic_method
	Dilution_Factor	21	F	
	Total_Or_Dissolved	23	F	T, D or N
	Basis	24	F	Wet, Dry, NA
	Analysis_Date	25	F	
	Analysis_Time	26	F	
	Lab_Prep_Method_Name	28	F	rt_prep_mthd_var rt_std_prep_method
	Prep_Date	29	F	
	Prep_Time	30	F	
	QC_Level	34	F	
	Column_Number	n/a	F	(may be set as Default)
	Test_Type	n/a	F	rt_test_type
dt_result	Sys_Sample_Code	3	T	dt_sample
(primary table)	Lab_Anl_Method_Name	12	T	rt_anl_mthd_var rt_std_analytic_method
	Cas_Rn	13	T	rt_analyte
	Result_Value	15	F	
dt_result	Lab_Qualifiers	16	F	
	Result_Unit	17	F	rt_unit
	Result_Type_Code	18	F	rt_result_type_code
	Detect_Flag	19	F	Y, N, TR or <
	Reporting_Detection_Limit	20	F	
	Total_Or_Dissolved	23	F	T, D or N
	Analysis_Date	25	F	
	Analysis_Time	26	F	

EQuIS Chemistry Simple Import Formats

EQuIS Table	Field	Field#	Required by EQuIS	Reference Table/Values
	Method_Detection_Limit	27	F	
	Result_Error_Delta	32	F	
	TIC_Retention_Time	33	F	
	Result_Comment	35	F	
	Column_Number	n/a	F	(may be set as Default)
	Test_Type	n/a	F	rt_test_type
dt_test_batch_assign	Lab_Anl_Mthd_Name	12	T	rt_anl_mthd_var rt_std_analytic_method
	Total_Or_Dissolved	23	F	T, D or N
	Analysis_Date	25	F	
	Analysis_Time	26	F	
	Test_Batch_Id	31	T	dt_test_batch
	Test_Type	n/a	F	rt_test_type
	Column_Number	n/a	F	(may be set as Default)
	Test_Batch_Type	n/a	F	rt_test_batch_type
dt_test_batch	Test_Batch_Id	31	T	
	Test_Batch_Type	n/a	T	rt_test_batch_type
none (fields in EDD but not in EQuIS db)	Project_Code	1	F	can be checked by Import
	Lab_Del_Group	10	F	
	Lab_Batch_Number	11	F	
	Chemical_Name	14	F	

EZEDD Revision History

Draft 1.2k (3/30/2004)

- added parent_sample_code to the EZEDD format

Draft 1.2j (2/26/2002)

- changed sys_sample_code from Text20 to Text40
- changed sample_type from Text10 Text20
- changed sample_time from Time to Text5
- changed lab_name_code from Text10 to Text20
- changed analysis_time from Time to Text5
- changed prep_time from Time to Text5

Draft 1.2i (11/1/2001)

- replaced rt_lab with rt_subcontractor
- changed System_Sample_Code to Sys_Sample_Code
- changed Laboratory_Delivery_Group to Lab_Del_Group
- changed Laboratory_Batch_Name to Lab_Batch_Number
- changed Lab_Analysis_Method_Name to Lab_Anl_Method_Name
- changed Lab_Preparation_Method_Name to Lab_Prep_Method_Code
- changed Prep_Batch_Number to Test_Batch_ID

Draft 1.2h (12/28/1999)

- replaced EquIS references with EQuIS
- updated header/footer

EQuIS Chemistry Simple Import Formats

Draft 1.2g (05/07/1998)
- ProjectCode is not required

Draft 1.2f (11/12/1997)
- added EDD File to EQuIS Table Distribution map

Draft 1.2e (10/01/1997)
- added Revision History section
- changed Result Qualifier to not be required
- added description to Result Qualifier
- format renamed to EZEdd from EFWDefault
- added Revision History section
- changed Result Qualifier to not be required
- added description to Result Qualifier

ES Basic Import (ESBasic)

Version 1.0d, 2/26/2002
Provided by EarthSoft, Inc.
Spreadsheet Template: EZ Formats.xls (ESBasic tab)
Former Title: Analytical Results - Electronic Data Transfer Format (ES Basic Format)

This import format does not fully support Total_or_Dissolved or Column_Number as parts of the Test Key. If this data is typically received in your imports, then you most likely should not be using this import format. This import format does allow for setting Total_or_Dissolved and/or Column_Number for all rows by specifying a single default value. This might be a useful approach if you receive your data from other formats that do support those fields, but use this format occasionally.

Strict adherence to the specifications in this document is mandatory.

Pos#	Field Name	DataType	Req.	Lookup Table	Description
1	sys_sample_ code	Text40	Y/K		Uniquely identifies a field or lab sample. For field samples, use the Field Sample Id. For laboratory blanks or samples, the laboratory may use Lab Sample Id only if the Lab Sample Id is unique, otherwise, the lab must come up with a way to generate unique lab sample id to be entered in this field.
2	sample_type_ code	Text20	Y	sample_type	Specifies sample type. For field samples, enter N (regular environmental sample), otherwise, use values listed in the sample type reference table For example, normal field samples must be distinguished from laboratory method blank samples, etc. IRPIMS-style sample type codes are understood by EQuIS, and other valid sample

EQuIS Chemistry Simple Import Formats

Pos#	Field Name	DataType	Req.	Lookup Table	Description
					types can be added by the EQuIS user. Field sample types (e.g., field duplicates, field blanks, etc.) might be submitted blind to the laboratory; in such cases the laboratory may report all field samples as if they were all normal field samples. The laboratory is not required to export data for a spike if a spike duplicate is exported (unless the EQuIS project manager requests all spikes).
3	sample_matrix_ code	Text10	Y	matrix	Code which distinguishes between different type of sample matrix. For example, soil samples must be distinguished from ground water samples, etc. IRPIMS-style sample matrix codes are understood by EQuIS, and other valid sample types can be added by the EQuIS user. The matrix of the sample as analyzed may be different from the matrix of the sample as retrieved (e.g., TCLP) but this EDD asks only for the matrix as sampled.
4	sample_date	Date	N		Date sample was collected in the field in mm/dd/yyyy format. Date information must be identical with the date from the AR/COC form. Leave blank for lab samples. Year may be entered as yy.
5	sample_time	Text5	N		Time sample was collected in the field in hh:mm format (24-hour clock, e.g. 3:40 pm is 15:40). Time information must be identical with the time from the AR/COC form. Leave blank for lab samples.
6	sys_loc_code	Text20	N	location	Sample collection location.
7	lab_name_code	Text20	Y	subcontractor	Laboratory that performed the analysis.
8	lab_anal_ method_name	Text35	Y/K	anl_mthd_var	Test method used in the analysis of the analyte.
9	analysis_date	Date	N/K?		Date sample was analyzed in mm/dd/yy format. .
10	analysis_time	Text5	N/K?		Time sample was analyzed in hh:mm format (24-hour clock, e.g. 3:40pm is 15:40).
11	test_type	Text10	N	test_type	Type of test. This field may be defaulted at import.
12	test_batch_id	Text20	N		Tracking number used by the laboratory to identify a group of samples analyzed in the same batch. This field, in conjunction with laboratory blank id, is used to link the relationship between field samples and laboratory blank and other QC

EQuIS Chemistry Simple Import Formats

Pos#	Field Name	DataType	Req.	Lookup Table	Description
					samples.
13	lab_sample_id	Text20	Y		Unique sample Id internally assigned by the laboratory.
14	basis	Text10	Y		Enter "Wet" for wet-weight basis reporting, "Dry" for dry-weight basis reporting, or "NA" for tests which this distinction is not applicable.
15	lab_prep_ method_name	Text35	N	prep_mthd_var	Description of sample preparation or extraction method.
16	prep_date	Date	N		mm/dd/yy. This field, in conjunction with extraction time, is used to determine whether holding times for field samples have been exceeded.
17	prep_time	Text5	N		hh:mm. This field, in conjunction with extraction date, is used to determine whether holding times for field samples have been exceeded.
18	cas_rn (CAS_Number)	Text15	Y/K	analyte	Unique analyte identifier. Use assigned CAS number when one is identified for an analyte. Tentatively Identified Compounds (TICs) are not assigned a standard CAS number. The laboratory is required to assign a UNIQUE identifier for each TIC. The unique identifier must be placed in this field. Since retention time for TICs are unique per sample and sample analysis method, this information is the recommended value to use as the unique identifier.
19	chemical_name	Text60	Y		Name of analyte or parameter analyzed.
20	result_value	Text20	N		Must only be a numeric value. It is stored as a string of characters so that significant digits can be retained. Must be identical with values presented in the hard copy. Analytical result is reported left justified. It may be blank for non-detects.
21	result_unit	Text15	Y	unit	This format assumes that the result value and detect limit have the same units.
22	detect_flag	Text2	Y		Enter "Y" for detected analytes or "N" for non-detected analytes.
23	detection_limit_	Text20	N		Must only be a numeric value. Use the value of

EQuIS Chemistry Simple Import Formats

Pos#	Field Name	DataType	Req.	Lookup Table	Description
	used				the Reported Detection Limit (RDL), Practical Quantitation Limit (PQL), or Contract Required Quantitation Limit. Value is stored as a string to retain significant figures. Unit of measure must be identical with the "Result Unit" field.
24	lab_qualifiers	Text7	N		Qualifier flags assigned by the laboratory. This is an optional field for the laboratory EDD unless otherwise specified by the EQuIS project manager. EQuIS does not enforce a controlled vocabulary on the values of this field, although a list of valid values may optionally be provided by the EQuIS project manager.
25	comment	Text255	N		Any comments related to the analysis.
26	parent_sample_ code	Text40	N		The value of "sys_sample_code" that uniquely identifies the sample that was the source of this sample.

EDD File To EQuIS Table Distribution

EQuIS Table	Field	Field#	Required by EQuIS	Reference Table/Values
dt_sample	Sys_Sample_Code	1	T	
(parent table)	Sample_Type_Code	2	T	rt_sample_type
	Sample_Matrix_Code	3	T	rt_matrix
	Parent_Sample_Code	26	F	
	Sample_Source	n/a		Field or Lab (set by Import)
dt_field_sample	Sys_Sample_Code	1	T	dt_sample
(parent table)	Sample_Date	4	F	
	Sample_Time	5	F	
	Sys_Loc_Code	6	F	
dt_lab_sample	Sys_Sample_Code	1	T	dt_sample
(parent table)	(Field OR Lab sample will be created, depending on Sample Type			
dt_test	Sys_Sample_Code	1	T	dt_sample
(parent table)	Lab_Name_Code	7	F	rt_subcontractor
	Lab_Anl_Method_Name	8	T	rt_anl_mthd_var rt_std_analytic_method
	Analysis_Date	9	F	

EQuIS Chemistry Simple Import Formats

EQuIS Table	Field	Field#	Required by EQuIS	Reference Table/Values
	Analysis_Time	10	F	
	Test_Type	11	F	rt_test_type
	Lab_Sample_Id	13	F	
	Basis	14	F	Wet, Dry, NA
	Lab_Prep_Method_Name	15	F	rt_prep_mthd_var rt_std_prep_method
	Prep_Date	16	F	
	Prep_Time	17	F	
	Total_Or_Dissolved	n/a	F	set to blank in Defaults. If it is part of key, it should be set to 'T'
	Column_Number	n/a	F	set to blank in Defaults. If it is part of key, it should be set to '1C' or 'PR'
	Analysis_Location	n/a		set to 'LB' in Defaults
	Dilution_Factor	n/a		set to '1' in Defaults
dt_result	Sys_Sample_Code	1	T	dt_sample
(primary table)	Lab_Anl_Method_Name	8	T	rt_anl_mthd_var rt_std_analytic_method
	Analysis_Date	9	F	
	Analysis_Time	10	F	
	Test_Type	11	F	rt_test_type
	Cas_Rn	18	T	rt_analyte
	Result_Value	20	F	
	Result_Unit	21	F	rt_unit
	Detect_Flag	22	F	Y, N, TR or <
	Reporting_Detection_Limit	23	F	
	Lab_Qualifiers	24	F	
	Result_Comment	25	F	
	Total_Or_Dissolved	n/a	F	set to blank in Defaults. If it is part of key, it should be set to 'T'
	Column_Number	n/a	F	set to blank in Defaults. If it is part of key, it should be set to '1C' or 'PR'
dt_result	Result_Type_Code	n/a		rt_result_type
dt_test_batch_assign	Sys_Sample_Code	1	T	dt_sample
	Lab_Anl_Method_Name	8	T	rt_anl_mthd_var rt_std_analytic_method
	Analysis_Date	9	F	
	Analysis_Time	10	F	
	Test_Type	11	F	set to 'initial' in Defaults
	Test_Batch_Id	12	F	dt_test_batch
	Total_Or_Dissolved	n/a	F	set to blank in Defaults. If it is part of key, it should be set to 'T'
	Column_Number	n/a	F	set to blank in Defaults. If it is part of key, it should be set to '1C' or 'PR'
	Test_Batch_Type	n/a		set to 'Analysis' in Defaults
dt_test_batch	Test_Batch_Id	12	F	

EQuIS Chemistry Simple Import Formats

EQuIS Table	Field	Field#	Required by EQuIS	Reference Table/Values
	Test_Batch_Type	n/a		set to 'Analysis' in Defaults
none	Chemical_Name	19	F	

EZ Formats (ESBasic) Revision History

Draft 1.0f (3/30/2004)
- added parent_sample_code to the ESBasic format

Version 1.0e (5/9/2003)
- Added EQuIS_UST import format
- Renamed *.doc and *.xls to EZ Formats

Version 1.0d (2/26/2002)
- changed Sys_Sample_Code from Text20 to Text40

Draft 1.0c (11/1/2001)
- changed System Sample Code to Sys_Sample_Code
- changed Location Code to Sys_Loc_Code
- replaced rt_lab with rt_subcontractor
- changed Analysis Batch Number to Test_Batch_ID
- changed Laboratory Sample ID to Lab_Sample_ID
- changed Preparation Method to Lab_Prep_Method_Name
- changed Laboratory_Batch_Name to Lab_Batch_Number
- changed Lab_Analysis_Method_Name to Lab_Anl_Method_Name

Draft 1.0b (12/29/1999)
- replaced references to EQuIS with EquIS
- updated Header/Footer
- fixed some formatting

Draft 1.0a (05/08/1998)
- added test_type as a part of the EDD file

Draft 1.0 (05/07/1998)
- cloned from EZEDD and simplified

