

## The TerraBase® “L2” EDD

### Generic Data Formatting and Data Library Guide for Project Managers and Laboratories:

This document, its appendices, and all associated data libraries are available in electronic format from the Project Manager upon request.

The Laboratory’s contractual requirements for the completion of any analytical services are not deemed to be met for any group of analyses performed until the Project Manager has received acceptable EDD files and description documents for all associated data as described within this guidance document. In the event of review, the EDD must, at minimum, allow the Project Manager to produce a complete and correct facsimile of the Laboratory’s hard-copy report for the associated analyses.

All EDD data must be presented as a bar-delimited (|) text file within the strict limitations of the format described in the following table. However, even if the formatting of the EDD is completely correct, the Project Manager may choose to reject the EDD if the contents of that file do not comply with the data-library standardization requirements detailed within the attached Appendices and data libraries.

Additionally, for special projects and uses, a Project Manager responsible for data standardization may provide additions to the standard data libraries for the laboratory’s special use within those projects. Any such additions shall be provided under separate cover and do not take the place of this generic data standards document.

The formatted EDD as submitted by the Laboratory to the Project Manager must always be accompanied by a separate, descriptive text file, which details (at minimum):

1. The name of the associated EDD file
2. The Facility to which the data should be associated.
3. All additional information that a lab has included in any hard-copy case narrative documentation which accompanies the associated hard-copy report.
4. A certification that the data contained in the associated EDD is an exact electronic representation for all applicable fields presented upon the associated hard-copy report.
5. The contact information for the lab or any other firms that produced the EDD file for the lab.

Typically each EDD file and its companion description file are to be compressed together into a standard ZIP file format mutually agreed upon in advance by the Lab and the Project Manager. This ZIP file may also be encrypted and/or password protected (at the discretion of the Project Manager) in order to prevent unauthorized access to the resident data and description. The ZIP file is then electronically transmitted (using secure e-mail, bbs, ftp, etc. as directed) or provided upon physical electronic media (Floppy disk, CD, Zip-disk, etc. as directed) to the Project Manager for review and acceptance.

The TerraBase® Environmental Data Management System stores analytical data from separate geographic facilities in segregated regions within the database structure. For this reason, sample data from separate facilities can never be combined within a single EDD file. However, data from multiple Projects and Sample Delivery Groups (SDGs) performed at the same Lab for the same Facility may (at the discretion of the Project Manager) be included within the same EDD file.

Field Number-Name	Data Type: Length	Description
1-Laboratory ID	Text: 6	Laboratory’s facility identifier ( <b>ASSIGNED BY PROJECT MANAGER</b> ) Only one LAB ID is permissible in a single EDD file. Any analyses subcontracted to different facilities should be submitted in separate EDD files with different LAB IDs to specify the different location.
2-Project ID	Integer	Major divisions (or projects) of historical data. Some generic/fictitious Examples of typical TerraBase Project IDs are: 100 = NPDES Monitoring, 200 = Fugitive Emissions Monitoring 300 = Stormwater Monitoring etc...  ( <b>PROJECT NUMBERS ARE ONLY ASSIGNED BY THE PROJECT MANAGER</b> ) Do NOT populate this field unless authorized by the Client/Project Manager responsible for specific projects.
3-SDG ID	Text: 8	<b>Unique</b> Subdivisions of a Project ID (Sample Delivery Group) <b>analyzed by a single LAB</b> . Different labs may not identify their results with the same SDG ID or their EDD files will wholly or partially overwrite each other during successive TerraBase data import operations. Unless a standardized, systematic, assignment by each lab is permitted for a project, this value is <b>ASSIGNED BY THE PROJECT MANAGER</b>
4-Analytical Fraction	Text: 1	A logical grouping of analytical results dictated by analytical methods employed for analysis. Please obtain an electronic data library file <b>from the Project Manager</b> (as described in the Appendix) for Method-to-Fraction cross-references. Only the following fraction codes are valid: “V” = Volatiles “B” = Semivolatiles “P” = Pesticides/PCB’s “M” = Metals “C” = Conventionals “T” = Total Petroleum Hydrocarbons “F” = Dioxin/Furans “H” = Herbicides “R” = Radiological analyses  Other Fractions CANNOT be added. This list is limited to the items shown above.
5-Site Sample ID	Text: 25	The sample name exactly as it appears on the associated chain of custody.
6-Sampling Date/Time	Date/Time	Date sample was collected in the format “mm/dd/yyyy hh:mm” (i.e., “05/04/1997 13:27”) If no time component is applicable or known, “00:00” should be used.
7-Top Depth	Real	Top depth at which sample was taken (for groundwater/soil samples) measured in feet or meters as directed by Project Manager.

8-Middle Depth	Real	Middle depth at which sample was taken (for groundwater/soil samples) measured in feet or meters as directed by Project Manager.
9-Bottom Depth	Real	Bottom depth at which sample was taken (for groundwater/soil samples) measured in feet or meters as directed by Project Manager.
10-Sample Point ID	Text: 20	Georeferenced data point from which a sample was taken. This field is required for data that is to be modeled, but may be blank for QC data. <b>(INITIALLY ASSIGNED BY THE PROJECT MANAGER)</b> This entry is often similar (if not identical) to the “Site Sample ID” field noted above. However, <u>it must have consistent nomenclature over repetitive sampling events</u> since it represents the name of a physical location on a facility map (such as using “MW-01” to always represent the “Monitor Well #01” map location). If this information is not specifically defined by the project manager, the field should be left blank.
11-Lab Sample ID	Text: 15	Sample name as assigned by laboratory/LIMS.
12-Lab Sample Type	Text: 5	Type of sample (such as site sample or field duplicate). Refer to Appendix A for a complete list of supported sample types. *This list is maintained by the Project Manager in a user-editable table.  Note: The only sample types normally reported in the L2 format originate in the field (i.e., they have Chain-of-Custody records). Results for lab-generated sample types are reported only when the lab is specifically instructed to do so by the Project Manager. In the event that lab-generated QC sample types are requested, special care should be taken in reporting values. For example, the “Blank” sample types always report actual concentration values but the only appropriate result/unit combinations for fortified sample types (spikes, etc.) are related to % recovery.
13-Matrix	Text: 1	“S” = Soil/Sediment “W” = Surface/Ground Water or Aqueous “A” = Air “O” = Oil “T” = Tissue “L” = Leachate *This list is maintained by the Project Manager in a user-editable table
14-Field Sample Classification	Text: 3	“SS” = Surface Soil “SE” = Sediment “SU” = Subsurface Soil “TW” = Groundwater “SW” = Surface Water / Top of Column “MW” = Mid-Column Water “BW” = Bottom of Column Water *This list is maintained by the Project Manager in a user-editable table
15-Filtration Method	Text: 1	Filtration method where applicable: “U” = Unfiltered (Total) “F” = Filtered (Dissolved) “L” = Leached “Z” = Zero-Headspace Extractor Leach

16-Extraction Date/Time	Date/Time	Applies mainly to Pesticides/PCB’s and Semivolatiles. Reported in same format as Sampling Date/Time (mm/dd/yyyy hh:mm) If no time component is applicable or known, “00:00” should be used.
17-Preparation Date/Time	Date/Time	Applies mainly to Metals and Conventional. Reported in same format as Sampling Date/Time (mm/dd/yyyy hh:mm) If no time component is applicable or known, “00:00” should be used.
18-Analysis Date/Time	Date/Time	Date sample was analyzed in the format “mm/dd/yyyy hh:mm”. If no time component is applicable or known, “00:00” should be used.
19-Instrument ID	Text: 10	Laboratory instrument which analyzed the sample (if applicable).
20-Rough Percent Moisture	Real	Any Percent Moisture value applicable to this result record used to produce the final result reported upon the lab’s hard-copy report for this analyte. This field should be left blank for all aqueous samples. It does not reflect the Quantitative result of a “Karl-Fischer” or other “percent moisture” parameter test. The data in this field only serves to alert the Project Manager to potential calculation and correction issues that may need to be applied during data review and reporting operations, which take place outside the Lab.
21-Dilution Factor	Real	Any Dilution Factor that was applied to the analytical result acquired upon the analytical testing instrument in order to produce the final result reported upon the lab’s hard-copy report for this analyte. As such, it does not include prep-related dilutions for analytical operations. At the discretion of the Project Manager, sample preps and their associated dilutions which affect an entire sample may also be reportable in the same EDD with the prep method listed as the “Analytical Method”
22-Analyte Type	Text: 1	<p>“A” = Analyte  “T” = Tentatively Identified Compound (TIC-for Organic analyses only).  “I” = Internal Standard  “S” = Surrogate Compound</p> <p>No other values are acceptable.</p> <p><b>NOTE:</b> If “I” or “S” are used, the only appropriate result/unit records are related to % recovery. Typically these analyte types are not reported in the L2 format unless the lab is specifically instructed to do so by the Project Manager.</p>
23-Analytical Method	Text: 13	Standardized code representing the approved Analytical method used in instrumental or classical chemistry evaluation which produced the final result for the reported parameter (e.g.: 150.1, SM9222B, 8260B, etc.). Please obtain an electronic data library file <b>from the Project Manager</b> for Method-to-Fraction cross-references, which includes the most common standard codes.

24-CAS Number Equivalent	Text: 9	Chemical Abstract Service Number <b><i>without hyphens</i></b> where applicable (i.e., "000012345" will equate to "000012-34-5"). If the parameter is not actually a chemical at all (e.g.: “pH” or “Conductivity”) <b>the lab should obtain a CAS-Number-Equivalent from the PROJECT MANAGER for this field.</b> CAS Number Equivalents are the most critical index for all analytical result parameters. However, compounds that are designated to be Organic TICs may be reported without CAS values in this field. Please obtain an electronic data library file <b>from the Project Manager</b> for CAS-Parameter cross-references, which includes the most common standard codes and synonyms.
25-Parameter Name	Text: 67	The assigned name of the compound or parameter being tracked. The Analyte Name <i>must</i> be reported consistently on all deliverables (especially for TICs, when CAS Numbers are not provided).
26-Retention Time	Real	Required for TICs in the format mm.hh (minutes and hundredths of a minute) in lieu of CAS values.
27-Detection/Reporting Limit	Real	<p>As dictated by the Project Manager. However, the detection/reporting limit must be reported in the same Result Units as an analyte’s Quantitative Result, and should only be corrected for any applied analytical dilutions as directed by the Project Manager. Otherwise this value should reflect only the routine, undiluted detection/reporting limit for each analyte.</p> <p>The detection limit threshold is typically based upon one or more of the following:</p> <ol style="list-style-type: none"> <li>1. The instrument detection limit (IDL) for the analytical method utilized (where applicable).</li> <li>2. The associated method detection limit (MDL),</li> <li>3. The practical quantitation limits (PQL),</li> <li>4. The contract required detection/reporting limits (such as the CRDL and CRQL commonly used for CLP procedures).</li> </ol> <p><b><u>NOTE:</u></b> Surrogates and Internal Standards (if requested by the Project Manager for inclusion in an L2 formatted file) do not require detection/reporting limits.</p>

28-Laboratory Quantitative Result	Real	<p>Concentration value or other numerical result reported upon the lab’s hard-copy report for this analyte. If a value is non-detect, it is acceptable to use "ND", <u>but only if the applicable detection/reporting limit value is reported in the previous field</u>. Symbols such as “&lt;” or “&gt;” are not acceptable in this field.</p> <p><b><u>NOTE:</u></b> Any “spiked-analyte” records requested by the Project Manager must use only the <u>percent recovery</u> as the reported value in this field with accompanying result units reported as “%REC”.</p> <p>For any analytical methods which properly produce a “text” result (such as “Color”), or for those which cannot produce a precise numerical value (such as “Total Coliform” which can be “Too Numerous to Count”), this field must be left <u>empty</u> (i.e., “null”) and the text-value or an acceptable abbreviation (not to exceed five characters) must be placed in the associated “Lab Qualifier” field</p>
29-Laboratory Qualifier	Text: 5	<p>The following qualifiers will be assumed for quantitative results if not supplied by the laboratory:</p> <p>"" (Null) = Detected at or above the detection/reporting limit          "U" = Not detected          "J" = Detected below the detection/reporting limit</p> <p>These Qualifiers <u>must</u> be supplied if no detection/reporting limit value is provided.</p> <p>For short, “Text” results (as described above) please obtain guidance from the Project Manager to secure standardization of abbreviations, etc.</p> <p>If "ND" was provided in the quantitative result, "U" will be automatically applied in this field during TerraBase data import operations.</p>
30-Result Units	Text: 8	<p>Examples of typical Result Units (others may also be used as appropriate if directed by the Project Manager):</p> <ol style="list-style-type: none"> <li>1. mg/L, mg/Kg, or PPM for various analytes</li> <li>2. ug/L, ug/Kg, or ppb for various analytes</li> <li>3. mg/m3, ppmv or ppbv for air analyses</li> <li>4. ug/g for tissue analyses</li> <li>5. S.U. (standard units) for pH</li> <li>6. Umhos/cm for specific conductivity</li> <li>7. C (centigrade) or F (Fahrenheit) for flashpoint</li> <li>8. % for lower explosive limit (LEL)</li> <li>9. pCi/L for radiologicals</li> <li>10. %REC for recovery of any spiked analytes</li> </ol>

**Appendix – Standard TerraBase® codes for use with aforementioned EDDs and reports:**

This section is provided for engineering and laboratory staff reference when constructing hard copy reports and EDDs in the aforementioned applicable formats for data submission **to the PROJECT MANAGER**. Please contact Integrate staff directly with any additional questions related to these standards and codes.

**1. Lab Sample Types (Field Number 12)**

Lab Sample Type (Code)	Lab Sample Description	Appropriate Field Sample ID Suffix (when applicable)
BS	Blank Spike	
BSD	Blank Spike Duplicate	
BSDRE	Blank Spike Duplicate Re-extraction/Re-analysis	RE
BSRE	Blank Spike Re-extraction/Re-analysis	RE
CC	Continuing Calibration	
CV	Calibration Verification	
ER	Equipment Rinsate	
ERDL	Equipment Rinsate Dilution	DL
ERRE	Equipment Rinsate Re-extraction/Re-analysis	RE
FB	Field Blank	
FBRE	Field Blank Re-extraction/Re-analysis	RE
FD	Field Duplicate	
FDDL	Field Duplicate Dilution	DL
FDRE	Field Duplicate Re-extraction/Re-analysis	RE
FLB	Leachate Fluid Blank	
FLO	Florisil Cartridge Check	
IB	Instrument Blank	
IC	Initial Calibration	
IPC	Instrument Performance Check	
LCS	Lab Control Sample	
LCSRE	Lab Control Sample Re-extraction/Re-analysis	RE
LD	Lab Duplicate	
LRB	Laboratory Reagent Blank	
MB	Method Blank	
MBRE	Method Blank Re-extraction/Re-analysis	RE
MS	Matrix Spike	
MSD	Matrix Spike Duplicate	
MSDDL	Matrix Spike Duplicate Dilution	DL
MSDL	Matrix Spike Dilution	DL
MSDRE	Matrix Spike Duplicate Re-extraction/Re-analysis	RE
MSRE	Matrix Spike Re-extraction/Re-analysis	RE
SB	Storage Blank	
SBRE	Storage Blank Re-extraction/Re-analysis	RE

TB	Trip Blank	
TBRE	Trip Blank Re-extraction/Re-analysis	RE
TRG	Site Sample	
TRGDL	Site Sample Dilution	DL
TRGRE	Site Sample Re-extraction/Re-analysis	RE

**2. Lab Sample Classifications (EDD Field Number 14):**

Lab Sample Classification ID (Code)	Lab Sample Classification Description
AAS	Air
BW	Bottom of Column Water
MW	Mid-Column Water
SE	Sediment
SS	Surface Soil
SU	Subsurface Soil
SW	Surface Water / Top of Column
TC	Crawfish Tissue
TCR	Crab Tissue
TF	Fish Tissue
TM	Mussel Tissue
TO	Oyster Tissue
TS	Shrimp Tissue
TW	Groundwater

**3. Laboratory Analytical Fraction Identifiers (EDD Field Number 4):**

Fraction (Code)	Fraction Name
B	Semivolatiles
C	Conventionals
F	Dioxins/Furans
H	Herbicides (do not use this code unless specifically instructed by PROJECT MANAGER)
M	Metals
P	Pesticides/PCBs
R	Radiologicals (do not use this code unless specifically instructed by PROJECT MANAGER)
T	Total Petroleum Hydrocarbons
V	Volatiles
X	BTEX (do not use this code unless specifically instructed by PROJECT MANAGER)

**4. CAS Numbers Equivalents and Parameter Names for Standard Use in EDD files (EDD Field Numbers 24 & 25) Available upon request from the Project Manager.**

**5. Analytical Methods and Fraction Associations for Standard Use in EDD files (EDD Field Numbers 4 & 23) Available upon request from the Project Manager.**