**Unified Chemical Electronic Data Deliverable (EDD) Format**

The objective of this guidance is to specify the naming requirements of the data validation summary report (DVSR) and electronic data deliverable (EDD) as well as the format for the submission of chemical data EDDs from the Companies to the Nevada Division of Environmental Protection (NDEP). The goal is to streamline uploading the Companies’ electronic data into the BMI Complex, Common Areas, and Vicinity Database (“the BMI Regional Database”) maintained by NDEP (<http://ndep.gisdt.org>). This task requires defining each element of the EDD so they are submitted in a consistent format. Provided below are the required elements of the EDD format and descriptions of the elements. The field and table names of each element in the EDD should be exactly as described in this document. Slight variations to these result in inefficient uploading of the data to the BMI Regional Database. Additions to the fields should be provided as comments to this guidance or in formal communications if they are developed later in the project.

# DVSR and EDD Formats and Naming Requirements

The chemical EDD should be delivered as a Microsoft Access database (file format of Access 2000 or later) with the data organized into the tables and fields as described in Appendix A. Each DVSR must have an associated EDD, and the data in each EDD should match the DVSR exactly, with no extraneous data in either the DVSR or EDD.

Both the DVSR document title and the EDD filename must incorporate the DVSR identifier (dvsr\_id) defined in Appendix A. It is critical that the dvsr\_id is unique and is associated with the data through to the decision stage report. For example, a human health risk assessment report should clearly identify the data used in the report by dvsr\_id(s). This allows the data to be traced from origin, through validation, to the “final” report.

There may be instances where deliveries of revisions to the initial DVSR and/or EDD will be required after NDEP review. In these cases, the revised DVSR and/or EDD must retain the identical original DVSR document title or EDD filename with the revision appended to the end of the report or filename. Renaming reports and/or filenames in this manner is necessary for efficient and effective document tracking.

The EDD requires five standard tables as described in Appendix A: samples, results, locations, validation\_reason, and lab\_qc. Native samples, including field duplicates, are required as part of the EDD and are uploaded into the BMI Regional Database. Field quality control (QC) data other than duplicates are required as part of the EDD but are not uploaded into the BMI Regional Database. It is understood that field QC data (e.g., trip and equipment blanks) may not necessarily have data for fields that are required for native samples, such as location, graphic classification, or sample depth information; however, all fields from the laboratory are required for all samples. Not all fields will contain a value; empty fields will be acceptable in the Microsoft Access database.

Appendix B provides sample matrix codes and descriptions. Appendix C provides sample type codes and descriptions. Appendix D provides guidance for populating the analytical method field in EDDs. Appendix E provides analytical suite codes and descriptions.

# Obsolete Data

Over time some data may become obsolete as sampled soils are removed during remediation. The Companies must notify NDEP on a per-sample basis of all data that become obsolete. Obsolete samples should be provided in an auxiliary table named “obsolete\_samples” and included in the first EDD delivery after the data have been rendered obsolete.

# Parameters and Parameter Identifiers

Assigning a unique identifier for each chemical reported is essential to developing a unified database. For purposes of the EDD, Chemical Abstract Service identifiers (CAS IDs) will be used to identify chemicals whenever possible. However, some substances may not have a CAS ID. For these chemicals, “codes” are provided in lieu of CAS IDs in the official Parameter ID - Parameter list maintained by NDEP (available on the Regional BMI database website). All chemicals reported in the EDD must be identified with a CAS ID or appropriate code in the “parameter\_id” field.

Because there can be multiple variations of names associated with a single parameter ID (synonyms, different spelling and capitalization, etc.), analyte names included in the EDDs will be normalized to the parameter in the official *Parameter ID – Parameter List*. Additionally, codes for parameters that do not have an official CAS ID will be normalized to those contained in the official *Parameter ID – Parameter list*.

The official *Parameter ID – Parameter List* was developed from the data that have been incorporated into the regional database. NDEP recognizes this list will continue to be refined and expanded as new chemicals are introduced. If an EDD contains chemicals (or other parameters) not currently in the official *Parameter ID – Parameter List*, a list of identifiers and descriptions of those parameters must be provided in a table named “parameter\_id\_new” that contains two fields, “parameter\_id” and “parameter” (see Appendix A).

# Asbestos

NDEP has provided technical guidance surrounding the calculation of asbestos related risk (“Technical Guidance for the Calculation of Asbestos Related Risk in Soils for the Basic Management Incorporated (BMI) Complex and Common Areas” dated February 2015). The reporting of asbestos in the Company-supplied EDD should follow this guidance. The important laboratory reporting parameters for asbestos are soil concentrations (fibers or structures), analytical sensitivity (S/g), and asbestos sensitivity units. Note that the soil concentration is derived from the number of fibers observed (unitless) times the analytical sensitivity (f/g). The elutriator method provides sensitivity in units of structures per gram (S/gPM10).It is critical that the laboratory report the biologically relevant structures—meaning those structures that are within the protocol dimensions of less than 0.4 µm in diameter and greater than 5 µm but less than 10 µm in length or are less than 0.4 µm in diameter and greater than 10 µm in length. These details are consistent with a report of the short, long and total asbestos structures in each sample. The name of the analyst should be reported as well.

An example of the information that should be reported for an asbestos sample includes the following subset of fields.

|  |
| --- |
| **Field Name** |
| sample\_id\_field |
| cas\_id |
| analyte\_name\* |
| result\_reported |
| asbestos\_analytical\_sensitivity\*\* |
| asbestos\_sensitivity\_units |
| analyst\_name |

\* Each sample should include results for all asbestos types: Total Chrysotile Protocol Structure, Long Chrysotile Protocol Structure, Long Amphibole Protocol Structure, Total Amphibole Protocol Structure, Long Asbestos Protocol Structure, Total Asbestos Protocol Structure, Short Chrysotile Protocol Structure, Short Amphibole Protocol Structure, and Short Asbestos Protocol Structure.

\*\* This should be the mean value, not the 95% upper confidence limit.

# Document Updates

Updates to this document are summarized in a change log provided in Appendix F.

***Appendix A: Electronic Data Deliverable Database Tables and Fields***

The electronic data deliverable (EDD) should be a Microsoft Access database containing at least five standard tables: samples table, results table, locations table, validation\_reason table, and lab\_qc table. The field names, tables, detailed descriptions, data types, values required, field requirements, and database constraints are provided in the table below. An additional table to identify obsolete samples should be included as necessary.

For convenience, the EDD database should also contain a query that links the samples, locations, and results tables, allowing a “flat-file” view of the data.

Not all fields will contain a value; however, certain fields, denoted “yes” in the “Value Required” column below, should always have a value.

| **Field Name** | **Table** | **Detailed Description** | **Data Type** | **Value Required** | **Field Requirements** | **Database Constraints** |
| --- | --- | --- | --- | --- | --- | --- |
| dvsr\_id | samples | A unique ID for each data validation summary report (DVSR), from each Company. The ID should contain elements that make it clear which Company supplied the DVSR, the year of submittal, and a unique number designation. The dvsr\_id must also be included within the title of the DVSR as well as the filename of the EDD. | text | yes |  |  |
| sample\_id\_field | samples | The sample ID used on the chain-of-custody, or similar field record. This ID should be **unique** to the sample and also consistent (identical) for all records associated with that sample. For example, where multiple analytes are reported, the sample ID should be identical for all. | text | yes | The values in sample\_id\_field must not appear in other DVSRs. Value must also be found in the *results* table. | Primary key (unique, not null) |
| location\_id | samples | An identification of the well or location where the sample was taken. The ID should be unique to that well or location and should be used in all future reports and EDDs. For wells, the identifier should match the appropriate well name in the All Wells Database currently maintained by the Bureau of Industrial Site Cleanup (BISC). Companies should edit the All Wells Database to ensure that identifiers for their wells match their current usage. For soil data, this identifier will be considered to be Company specific; as part of the development of the regional database, a location table will be developed that will allow locations to be uniquely identified across Companies. | text | yes |  | Foreign key, references locations (location\_id) |
| sample\_top\_depth | samples | Sample top depth in feet. For Companies that only record a single sample depth, this value should go in both the sample\_top\_depth and sample\_bottom\_depth fields. | numeric | see field requirements | Not empty for matrix SO, SD, WG, AG. Value must be a depth below ground surface, not an elevation. |  |
| sample\_bottom\_depth | samples | Sample bottom depth in feet. For Companies that only record a single sample depth, this value should go in both the sample\_top\_depth and sample\_bottom\_depth fields. | numeric | see field requirements | Not empty for matrix SO, SD, WG, AG. Value must be a depth below ground surface, not an elevation. |  |
| matrix | samples | A short code that designates the matrix of the sample. A list of codes is provided in Appendix B. | text | yes | Value must be taken from Appendix B. |  |
| sample\_type | samples | A short code that designates the sample type (e.g., field duplicate as FD). A list of codes is provided in Appendix C. | text | yes | Value must be taken from Appendix C. |  |
| sample\_date | samples | The year, month, and day of sample collection. Requested format: YYYY-XX-ZZ, where YYYY = year, XX = month, and ZZ = day of month. This format should be used for all dates. | date | yes | Valid date |  |
| sample\_time | samples | The time a sample was collected in hour:minute format. A 24‑hour format is required: 12:15 indicates 15 minutes after noon. One hour later would be 13:15. | time | yes | Valid time |  |
| litho | samples | The designation of the lithologic nomenclature tags are Qal (Quaternary Alluvium), xMCf (transitional Muddy Creek formation), or UMCf (Upper Muddy Creek formation). Designations may also include Qal/xMCf, Qal/xMCf/UMCf, or xMCf/UMCf if wells cross these lithologies. This lithologic nomenclature is described in the January 6, 2009, letter (Hydrogeologic and Lithologic Nomenclature Unification) from the Nevada Division of Environmental Protection (NDEP) to the Companies. | text | see field requirements | Not empty for matrix SO, SD, WG, or AG |  |
| hydro | samples | The designation of the water-bearing zone associated with the sample: Shallow, Middle, Deep. This hydrogeologic nomenclature is described in the January 6, 2009, letter (Hydrogeologic and Lithologic Nomenclature Unification) from NDEP to the Companies. | text | see field requirements | Not empty for matrix WG |  |
| sample\_collection\_comment | samples | Field for capturing information about how the sample was collected. For example, when groundwater samples have been collected from open boreholes using a bailer or from direct push equipment versus collecting the sample from a well using a submersible pump. This field should be populated only in cases where the sample was collected in a “non-standard” manner. | text | no |  |  |
| sample\_comment | samples | A field to include comments associated with a specific sample | text | no |  |  |
| sample\_id\_field | results | The ID used on the chain-of-custody, or similar field record. This ID should be **unique** to the sample and also consistent (identical) for all records associated with that sample. For example, where multiple analytes are reported, the sample ID should be identical for all. | text | yes | Value must also be found in the samples table. | Foreign key, references samples (sample\_id\_field) |
| percent\_moisture | results | The percentage of moisture of a solid sample. Provide this record as a number, such as 95.6 for 95.6% moisture and not in decimal form (0.956). | numeric | see field requirements | Not empty for matrix SO, SD, TA, or TP  If sample is matrix TA or TP, report percent lipid in this field and note that in the sample\_comment field. |  |
| filtered\_flag | results | Values include TOTAL or DISSOLVED indicating whether the sample was filtered. | text | see field requirements | Not empty for matrix WG or WS |  |
| analytical\_method | results | An identifier for the analytical method used for that suite of analyses. The identifier should include the version of the method. For example, many of the SW-846 methods have a letter at the end to indicate the version (e.g., 8330B). A format is provided in Appendix D. | text | yes | Must follow guidance in Appendix D.  If the result is a calculation, append “Calc” to the end of the analytical method. |  |
| preparation\_method | results | An identifier for the preparation method used for the suite of analyses. Use the guidelines found in Appendix D. | text | see field requirements | This value must be populated for each record where the preparation method is distinct from the analytical method (e.g., preparation with 3050, analysis with 6010). |  |
| analytical\_suite | results | A short code that designates the analytical suite, such as semivolatile organic compound (SVOC). A list of codes is provided in Appendix E. | text | yes | Value must be taken from Appendix E. |  |
| analyst\_name | results | The name or initials of the analyst that performed the analysis | text | see field requirements | Required for asbestos |  |
| analysis\_date | results | The year, month, and day of sample analysis. Format: YYYY-XX-ZZ, where YYYY = year, XX = month, and ZZ = day of month. This format should be used for all dates. | date | yes | Valid date |  |
| analysis\_time | results | The time the sample was analyzed in hour:minute format. A 24‑hour format is required: 12:15 indicates 15 minutes after noon. One hour later would be 13:15. | time | see field requirements | Valid time; must be populated unless the analysis time is not recorded by the laboratory |  |
| prep\_date | results | The year, month, and day of laboratory sample preparation. Format: YYYY-XX-ZZ, where YYYY = year, XX = month, and ZZ = day of month. This format should be used for all dates. | date | see field requirements | Valid date. Data that have a preparation step that is separate from the analysis method must have this field populated. |  |
| prep\_time | results | The time the sample was prepared in hour:minute format. A 24‑hour format is requested: 12:15 indicates 15 minutes after Noon. One hour later would be 13:15. | time | see field requirements | Valid time. Data that have a preparation step that is separate from the analysis method must have this field populated. |  |
| parameter | results | A name for the parameter that corresponds to the code in the parameter\_id field. This field will be normalized to the parameter contained in the list located on the BMI Regional database website. This field is included in order to perform a quality assurance check for parameter\_id. | text | yes |  |  |
| parameter\_id | results | The Chemical Abstracts Service (CAS) designation for the analyte or a code if no CAS designation exists for the analyte/parameter in question.Parameter list is located on the BMI Regional database website. | text | yes | Taken from Parameter list, unless not identified therein. |  |
| result\_type | results | A short code to indicate the type of result for this record. Acceptable values include TG (target) and TIC (tentatively identified compound). Others should be recommended by the Companies during review of this EDD guidance. | text | yes |  |  |
| reanalysis\_flag | results | The field should contain either “Initial” or “Reanalysis.” A sample that requires dilution and subsequent reanalysis would be designated “reanalysis,” as would a sample that required re-extraction. | text | yes |  |  |
| result\_reported | results | *Non-radionuclides:*   * For detected non-radionuclide results, result\_reported is the value reported by the laboratory that is greater than or equal to the standard quantitation limit (SQL). * For non-radionuclide non-detected results, the result\_reported should equal the SQL. * For rejected non-radionuclide results, the result\_reported should be the value reported by the laboratory.   *Radionuclides:*   * For all radionuclides, result\_reported is the positive or negative value reported by the laboratory.   *Asbestos:*   * For asbestos, result\_reported is the number of structures. | numeric | yes |  |  |
| result\_units | results | Units associated with the result\_reported value. Identical units are required for the SQL, practical quantitation limit (PQL), and method detection limit (MDL) as well as the minimum detectable concentration (MDC) for radionuclides. | text | yes | For leachate, the units should be associated with a liquid measurement. |  |
| result\_uncertainty | results | The uncertainty value associated with the laboratory reported results. This will apply to radionuclides and possibly other analytes (e.g., X-ray fluorescence [XRF] analysis results). This field is not applicable to asbestos. The DVSR (or laboratory report within the DVSR) should define the uncertainty (e.g., one sigma). | numeric | see field requirements | Not empty for radionuclides and XRF, otherwise optional (may be empty) at this time |  |
| asbestos\_analytical\_sensitivity | results | The analytical sensitivity associated with the asbestos results. This should be the mean value, not a 95% upper confidence limit. | numeric | see field requirements | Not empty for asbestos results, otherwise empty |  |
| asbestos\_sensitivity\_units | results | The units associated with the asbestos sensitivity value (structures/gram, usually as S/gPM10) | text | see field requirements | Not empty for asbestos results, otherwise empty |  |
| detect\_flag\_fod | results | ***This field should be populated after final validation qualifiers have been applied.***  A flag, D (detect), U (nondetect), or R (rejected), indicating whether the result\_reported is considered a detected value for purposes of frequency of detection (FOD) reporting.  Asbestos is considered detected (“D”) if counts are > 0.  For radionuclides, if the result\_reported is less than the minimum detectable concentration (MDC), the detect\_flag\_fod should be “U.” | text | yes | D (detect), U (nondetect), or R (rejected) |  |
| detect\_flag\_ra | results | ***This field should be populated after final validation qualifiers have been applied.***  A flag, D (detect), U (nondetect) or R (rejected), indicating whether the result\_reported is considered a detected value for purposes of risk assessment (RA). Detect\_flag\_ra is equal to detect\_flag\_fod except in the case of radionuclides.  For detect\_flag\_ra, all radionuclide results reported are considered detected values (“D”), regardless of the MDC and including negative results. | text | yes | D (detect), U (nondetect), or R (rejected) |  |
| method\_detection\_limit | results | The MDL for the analyte. This definition should follow the December 3, 2008, NDEP guidance entitled Detection Limits and Data Reporting. | numeric | no | Should be defined in the DVSR if used. Units should be the same as result\_units. |  |
| sample\_quantitation\_limit | results | The SQL for the analyte. This definition should follow the December 3, 2008, NDEP guidance entitled Detection Limits and Data Reporting. | numeric | see field requirements | This value should be populated, except for those analytes (e.g., pH) to which it does not apply. Units should be the same as result\_units. |  |
| practical\_quantitation\_limit | results | The PQL for the analyte. This definition should follow the December 3, 2008, NDEP guidance entitled Detection Limits and Data Reporting. | numeric | see field requirements | This value should be populated except for those analytes (e.g., pH) to which it does not apply. Units should be the same as result\_units. |  |
| minimum\_detectable\_concentration | results | The minimum detectable concentration, MDC, is used for radionuclide results. | numeric | see field requirements | This value must be populated for each radionuclide result. Units should be the same as result\_units. |  |
| dilution\_factor | results | Any dilution factor used to arrive at the final reported value | numeric | yes | This field has a default value of 1. |  |
| sample\_id\_lab | results | The ID of the sample used at the laboratory. This ID should generally be unique to the sample and consistent for all records associated with that sample. For example, where multiple analytes are reported, the sample ID should be identical for all. There are instances where a different name may be required (e.g., reanalysis), but the use of multiple names should be minimized as much as possible. | text | yes |  |  |
| lab\_id | results | An abbreviation of the name of the laboratory performing the analyses, down to the laboratory location. For example, TestAmerica-Richland, Washington, should have a designation that differs from other TestAmerica locations. Companies should provide a recommended ID for each laboratory currently used or expected. A designation for field analysis should be included. | text | yes |  |  |
| sdg\_id | results | The sample delivery group identification supplied by the laboratory | text | yes |  |  |
| batch\_id | results | The analytical batch identification supplied by the laboratory | text | see field requirements | Must be populated if the laboratory assigns a batch ID in the laboratory report |  |
| lab\_qualifier | results | The qualifier that may have been assigned to a result\_reported by the laboratory that performed the analysis | text | see field requirements | Must be populated if the lab provided a qualifier |  |
| validation\_flag | results | A flag, T (true) or F (false). T indicates the value was validated after the laboratory reported the value. | text | yes | T (true) or F (false) |  |
| validation\_stage | results | The stage to which the data has been validated. This stage designation should be consistent with NDEP Data Validation Guidance dated January 1, 2018. Stage 2A, 2B or 4 are the anticipated values. The terms used need to be defined in the DVSR. | text | see field requirements | Stage 2A, Stage 2B, or Stage 4  Must be populated if validation\_flag = T |  |
| final\_validation\_qualifier | results | The final non-laboratory qualifier applied to the value. If the laboratory qualifier is deemed appropriate during data validation, this value should be equal to or consistent with the lab\_qualifier. | text | see field requirements | Must be populated unless the result\_reported requires no qualification. |  |
| final\_validation\_reason\_codes | results | The reason code(s) that corresponds to the final validation qualifier (if more than one code, this should be represented as a comma-separated list of codes). At this point there is no specified set of values. The Companies may use their codes (and combination of codes) as long as all values are defined in the DVSR. | text | see field requirements | Must be populated unless the result\_reported requires no qualification |  |
| result\_comment | results | A field to include comments associated with a specific result | text | no |  |  |
| location\_id | locations | An identification of the well or location where the sample was taken. The ID should be unique to that well or location and should be used in all future reports and EDDs. For wells, the identifier should match the appropriate well name in the All Wells Database currently maintained by BISC. Companies are welcome to edit the All Wells Database to ensure that identifiers for their wells match their current usage. For soil data, this identifier will be considered to be Company specific; as part of the development of the regional database, a location table will be developed that will allow locations to be uniquely identified across Companies. | text | yes |  | Primary Key (unique, not null) |
| sub\_area | locations | A unique designation for each sub-area or parcel | text | no | Required only if sub-areas are used by the company. |  |
| lou | locations | An aerial designation for a location as described in a Letter of Understanding (LOU) between NDEP and the Company. If no LOU is associated with the sample, this field should be labeled as “NULL.” | text | no |  |  |
| northing | locations | Northing coordinate of the sample in North American Datum (NAD) 1983 State Plane Nevada East feet. | numeric | yes |  |  |
| easting | locations | Easting coordinate of the sample in NAD 1983 State Plane Nevada East feet. | numeric | yes |  |  |
| dvsr\_id | validation\_reason | A unique ID for each DVSR, from each Company. The ID should contain elements that make it clear which Company supplied the DVSR, the year of submittal, and a unique number designation. The dvsr\_id must also be included within the title of the DVSR as well as the filename of the EDD. | text | yes | Must match the dvsr\_id in the samples table | Primary key in combination with validation\_reason\_code |
| validation\_reason\_code | validation\_reason | Individual validation reason code used in lookup table | text | yes |  | Primary key in combination with dvsr\_id |
| validation\_reason | validation\_reason | The description of the reason code. For example, “Holding time exceeded” or “Laboratory blank contamination.” The description should be consistent with the validation and completely described in the DVSR | text | yes |  |  |

The “lab\_qc” table is required to provide an electronic copy of all of the associated laboratory quality control data. The fields contained in this table should be similar in content to the samples and results tables. Each type of QC sample should be identified by a code in Appendix C to be consistent in identifying each type of QC sample.

The following table lists fields for the two EDD data tables “obsolete\_samples” and “parameter\_id\_new”:

|  |  |
| --- | --- |
| **Table** | **Field Name** |
| obsolete\_samples | sample\_id\_field  obsolete\_reason |
| parameter\_id\_new | parameter\_id  parameter |

***Appendix B: Matrix Code and Description***

|  |  |
| --- | --- |
| **Matrix Code** | **Description** |
| AO | Outdoor air |
| AI | Indoor air |
| AG | Soil gas |
| AF | Flux chamber air |
| SD | Sediment |
| SO | Soil |
| SW | Swab or wipe |
| TA | Animal tissue |
| TP | Plant tissue |
| WS | Surface water |
| WG | Ground water |
| NAPL | Non-aqueous phase liquid |
| BW | Blank water |
| LE | Leachate |

**Appendix C: Sample Type Code and Description**

|  |  |
| --- | --- |
| **Sample Type Code** | **Description** |
| AB | Ambient conditions blank (for soil gas) |
| BD | Blank spike duplicate |
| BS | Blank spike |
| EB | Equipment blank |
| ER | Equipment rinse |
| FB | Field blank |
| FD | Field duplicate sample |
| FR | Field replicate |
| FLD | Field analyses such as pH, temperature, specific conductance |
| LB | Lab blank |
| LD | Lab duplicate |
| LCS | Lab control spike |
| LCSD | Lab control spike duplicate |
| LR | Lab replicate |
| MB | Material/method blank |
| MS | Lab matrix spike |
| MSD | Lab matrix spike and spike duplicate pair considered as one sample |
| NORM | Normal environmental sample taken in field |
| RD | Regulatory duplicate |
| SPT | Field split sample |
| TB | Trip blank |
| WT | Waste |

***Appendix D: Analytical Method Name/Code Guidance***

Recommended format and guidance for analytical method names include the following:

* If the method is based on the United States Environmental Protection Agency (EPA) SW846, start the name with “SW,” followed by the number and any applicable letter; e.g., SW8260b.
* If the method is based on an EPA method that includes a digit after the period (e.g., Clean Water Act methods), be sure to include the digit, even if it is zero. Start the name with EPA; e.g., EPA 300.0
* If the method is based on an EPA document and citing that document is sufficient to understand the method used, include the document number; e.g., EPA-540-R97-028.
* If the method is based on an ASTM method, include “ASTM” before the letter and number designation (e.g., ASTM D5755‑03). Be sure to include the base designation (e.g., D5755) and edition version (e.g., ‑03).
* If the method is based on Standard Methods for the Examination of Water and Wastewater, include “SM” before the number along with the base designation and the method version (e.g., SM7500Ra). The data validation summary report (DVSR) should include the edition (e.g., 18th edition) or year the method was approved.
* Proprietary methods specific to a laboratory should have a designation that can be traced to the DVSR and method standard operating procedure. The version of the method needs be included in the DVSR and may also be incorporated into the EDD.

All preparation methods that are distinct from the determination method must be included in the DVSR report and EDD (preparation\_method field).

A designation indicating that the method is a modified version (e.g., mod) is recommended but not required. However, the DVSR should indicate if the method is a modified version of a published method.

***Appendix E: Analytical Suite Code and Description***

|  |  |
| --- | --- |
| **Analytical Suite Code** | **Description** |
| ALDH | Aldehydes |
| ASB | Asbestos |
| CRVI | Hexavalent chromium |
| CYAN | Cyanide |
| DIO\_FUR | Dioxins and furans |
| FIELD | Field measurements |
| GENERAL | Wet chemistry type measurements: anions, hardness, bicarbonate, alkalinity, perchlorate, ammonia, bromide, total kjeldahl nitrogen, pH, TDS, TSS, TOC, etc. |
| HERB | Herbicides |
| METALS | Metals and elements using inductively coupled plasma (ICP), atomic absorption, ICP-mass spectrometry |
| ORG\_ACID | Organic acids |
| PCB | Polychlorinated biphenyls (PCBs), Aroclors or congeners. |
| PEST | Pesticides |
| SVOC | Semivolatile organic compounds |
| TPH | Total petroleum hydrocarbons, all molecular weights |
| VOC | Volatile organic compounds |
| XRFMetals | Metals and elements using X-ray fluorescence (XRF) |
| RADS | Radionuclides |
| PAH | Polyaromatic hydrocarbons |

***Appendix F: Annotation of Updates to the Unified Chemical EDD Format Document***

December 2017

1. Added a requirement for the laboratory QC data to be provided in the EDD in a table named “lab\_qc”.
2. Updated the links to NDEP’s website.
3. Updated reference for “Technical Guidance for the Calculation of Asbestos Related Risk in Soils for the Basic Management Incorporated (BMI) Complex and Common Areas” dated February 2015.
4. Changed MDA to MDC.
5. Removed Appendices F, G, and H and incorporated information into Appendix A. Renamed Appendix I to Appendix F.
6. Clarified that sample\_top\_depth and sample\_bottom\_depth must be a depth below ground surface and not an elevation.
7. Any reported time (sample\_time, prep\_time, analysis\_time) only requires the hour and minute.
8. Clarified how to report percent moisture.
9. Addressed how to report a calculated result in the analytical\_method field, not in the parameter field.
10. Updated result\_type to TG and TIC.
11. In Appendix C-
    1. The following sample\_type\_codes have been removed: DIL, FDMS, FS, KD, MBD, ORIG, RE, RM, RN, SD, SPB, TBD, WPB
12. In Appendix E-
    1. hexavalent chromium has been updated from CRVL to CRVI
    2. OPPEST and OCPEST have been combined into one suite PEST
    3. WPH, SOLIDS, TOC were removed and added to the suite GENERAL
    4. XRFMetals was removed; suite METALS can be used and XRF can be designated in the analytical\_method field
    5. TEM, PLM, and XRD were removed; they all represent analytical\_methods
13. Appendix F was removed. The information was already in Appendix A so this avoids duplication.
14. Appendix F and G were removed. These parameters can be included in the Parameter ID-Parameter list.
15. Appendix I was renamed to Appendix F.
16. An updated Parameter ID-Parameter list will be provided in January 2018.

May 2013

# Added Appendix F (DVSR EDD Guidance Flags) and referenced this appendix in section “DVSR and EDD Formats and Naming Requirements”.

1. Renamed Appendices F, G, and H to accommodate the additional appendix.
2. Removed the sentence in the “Non-Analytical Data” section that referenced separate data tables for the non-analytical data.
3. Added three additional entries for the litho field.
4. Noted that prep\_date and prep\_time are required only if the information is available.
5. Changed the text that referenced “analyte\_name” and “cas\_id” to “parameter” and “parameter ID” to better accommodate all of the data that is included in the database.

January 2012

1. Main document text revisions:

a. General edits in the body of the document were made for clarity.

b. The dvsr\_id must be included within the DVSR title as well as the EDD filename.

c. Revised DVSRs and/or EDDs must retain the original DVSR document title or EDD filename with the revision appended to the end of the report or filename. For example, if an original EDD was entitled “Company X groundwater report 2011.mdb,” revision 1 of the EDD should be entitled “Company X groundwater report 2011 rev1.mdb.”

d. Analyte\_name will be normalized to those contained in the official CAS ID – analyte name list located at <http://ndep.gisdt.org>.

e. Physical parameter codes in the cas\_id field will be normalized to those contained in the official CAS ID – analyte name list.

2. The EDD Data Fields table from the June, 2010 version was combined with Appendix A: EDD Database Tables and Field Requirements.

a. The “Short Description” column was deleted because it was redundant.

b. A “Value Required” column was added to indicate fields that must be populated.

c. A “Database Constraints” column was added to describe primary/foreign key relationships.

d. The “Field Requirements” column was edited for clarity.

e. EDD samples table:

* Added text indicating the dvsr\_id must be included within the DVSR title as well as the EDD filename.
* A location\_id field was added as a foreign key.
* The hydro field was moved from the locations table to the samples table.

f. EDD results table:

* The percent\_moisture field was moved from the samples table to the results table.
* The filtered\_flag field was moved from the samples table to the results table. The filtered\_flag was changed to Y (filtered)/N (unfiltered) to avoid confusion associated with the previous T/F flag.
* Added text indicating analyte\_name will be normalized to those contained in the official CAS ID – analyte name list located at <http://ndep.gisdt.org>.
* Added text indicating physical parameter codes in the cas\_id field will be normalized to those contained in the official CAS ID – analyte name list.
* Reworded the result\_reported detailed description for clarity.
* Detect\_flag\_fod and detect\_flag\_ra fields: changed flags to D (detect), U (nondetect) and R (rejected) for improved clarity instead of previous T/F flags. Updated detailed description.
* Dilution\_factor: assigned a default value of 1 for all records.
* Lab\_id: clarified this field should be an abbreviation of the lab name.
* Noted that data associated with blank contamination are no longer censored.

3.Appendix F: Field Measurements and Appendix I: CAS IDs/Analyte Codes in the June, 2010 version were deleted because the information is now contained in the official CAS ID – analyte name list located at <http://ndep.gisdt.org>.

June 2010

1. As of the previous version of the EDD guidance, the CAS ID/Analyte Code table was made available in electronic

format as a Microsoft Excel spreadsheet. In this version, this table has been removed from the document because it is so large and unwieldy. Appendix I [H] now contains instructions for accessing the table in electronic form.

2. In the EDD Data Fields section, guidance was clarified for the following fields:

a. hydro

b. litho

c. result\_reported

d. detect\_flag\_ra

3. The table in Appendix A was replaced with a new table containing more detailed information about data types and requirements (for example, which fields cannot be left empty) for each field in the EDD, in addition to the original information about which fields make up each of the four required EDD tables.

4. In Appendix B, added a new matrix code LE for leachate.

February 2010

1. Clarified description of Well ID field.

2. Added this appendix.

3. Added section “Lookup Tables.”

4. Updates to Appendix I, CAS IDS/ANALYTE CODES:

a. Replaced redundant/overlapping CAS IDs for TPH analytes with 5 new IDs: TPH\_GRO, TPH\_DRO,

TPH\_ORO, TPH\_EFH, and TPH\_HEMOG

b. Changed CAS ID Z7HEX to 35507-09-6 for [Z]-7-Hexadecene

c. Removed redundant or erroneous CAS IDs ‘163’, DICBTOT, DPPT, 100022-54-1(Ethyl 2-chloro-2-[3-

chlorobenzene]), OSOIL, 100021-66-2(Trans-2,3-dimethylthiophane)

d. There were duplicate CAS IDs for analytes 13C12-PCB 77, 13C12-PCB 81, 13C12-PCB 118, 13C12-PCB

126, and 13C12-PCB 169 – duplicates were removed.

e. Changed analyte name for CAS ID 608-73-1 from 1,2,3,4,5,6-Hexachlorocyclohexane to Lindane

f. Fixed misspelling of analyte name for CAS ID 126-98-7 (Methacrylonitrile was spelled Methylacrylonitrile)

g. Changed analyte name for CAS ID 7440-08-6 from Polonium-209 to Polonium; added new CAS ID PO-209

for Polonium 209

h. Changed analyte name for CAS ID 297-97-2 (incorrectly listed with analyte name TEPP) to Thionazin

i. Changed CAS ID for Thiophenol from 108-95-5 to 108-98-5

j. Added new CAS IDs