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NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
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STATE OF NEVADA
Department of Conservation & Natural Resources
DIVISION OF ENVIRONMENTAL PROTECTION

Jim Gibbons, Governor
Allen Biaggi, Director
Leo M. Drozdoff, P.E., Administrator

July 7, 2010

Mr. Mark Paris
Basic Remediation Company
875 West Warm Springs Road
Henderson, NV 89011

Mr. Matt Paque
Tronox LLC
3301 NW 150th
Oklahoma City, OK 73134

Mr. Curt Richards
Olin Corporation
3855 North Ocoee St., Ste 200
Cleveland, TN 37312

Mr. Joe Kelly
Montrose Chemical Corp of CA
600 Ericksen Ave NE, Suite 380
Bainbridge Island, WA 98110

Mr. Brian Spiller
Stauffer Management Co LLC
1800 Concord Pike
Wilmington, DE 19850-6438

Mr. Craig Wilkinson
Titanium Metals Corporation
PO Box 2128
Henderson, NV 89009

Re. **BMI Plant Sites and Common Areas Projects, Henderson, Nevada**
NDEP-Required Electronic Data Deliverables (EDD) Format

Dear Sirs:

All of the parties listed above shall be referred to as "the Companies" for the purposes of this document.

NDEP will electronically transmit a revised EDD format to the Companies which the NDEP will require the Companies to conform to for all future Deliverables. The EDD format has been revised due to minor issues that have been recurring within the data validation summary reports. Please note that Appendix J of the electronic transmittal annotates the changes made to this document.

Please contact me with any questions (tel: 775-687-9373; e-mail: glovato@ndep.nv.gov).

Sincerely,

Greg Lovato, P.E.
Supervisor, Remediation Branch
Bureau of Corrective Actions
Fax: (775) 687-8335

GL:s

EC: Jim Najima, NDEP, BCA, Carson City
Shannon Harbour, NDEP, BCA, Las Vegas
William Knight, NDEP, BCA, Las Vegas
Todd Croft, NDEP, BCA, Las Vegas
Dave Gratson, Neptune and Company
Paul Black, Neptune and Company
Teri Copeland
Paul Hackenberry, Hackenberry Associates
Brian Rakvica, McGinley and Associates
Kurt Fehling, The Fehling Group
Barry Conaty, Holland & Hart LLP
Brenda Pohlmann, City of Henderson
Mitch Kaplan, U.S. Environmental Protection Agency, Region 9
Ebrahim Juma, Clark County DAQEM
Jeff Gibson, AMPAC
Ranajit Sahu, BRC
Rex Heppe, ATC
Kirk Stowers, Broadbent & Associates
George Crouse, Syngenta Crop Protection, Inc.
Nicholas Pogoncheff, PES Environmental, Inc.
Keith Bailey, Environmental Answers
Susan Crowley, Tronox LLC (contractor)
Roy Widmann, Tronox LLC
Michael J. Foster, Tronox LLC
Lee Erickson, Stauffer Management Company
Michael Bellotti, Olin Corporation
Paul Sundberg, Montrose Chemical Corporation of CA
Deni Chambers, Northgate Environmental Management, Inc.

CC: Rick Kellogg, BRC, 875 West Warm Springs, Henderson, NV 89011
Mike Skromyda, Tronox LLC, PO Box 55, Henderson, Nevada 89009
Robert Infelise, Cox Castle Nicholson, 555 California Street, 10th Floor, San Francisco, CA 94104-1513
Michael Ford, Polsinelli Shughart, Security Title Plaza, 3636 N. Central Avenue, Suite 1200, Phoenix, AZ 85012

Attachment A

Unified Chemical EDD Format

The objective of this guidance is to specify the design of the format for the submission of electronic chemical data from the Companies to NDEP. The goal is to streamline the uploading of the Companies' electronic data into the regional database maintained by the NDEP. This task requires defining each element of the EDD(s) so that they are provided in a consistent format. Provided below are the required elements of the EDD format and descriptions of the elements. Requested formats and codes are provided in appendices, which should be followed to the extent possible. Additions to the fields should be provided as comments to this guidance or in formal communications if they are developed later in the project. Due to the resources required to modify the EDD for each Company it is the desire of the NDEP to modify this EDD as infrequently as possible.

The chemical EDD should be delivered as a Microsoft Access database (file format Access 2000 or later) with the data organized into several tables. The fields to be included in each table are described in Appendix A.

It is understood that the database developed for the data validation summary report (DVSR) will include additional fields and records (e.g. quality control (QC) data). However, these additional fields and records should be provided in a separate table from the format described here. All native samples, including replicates should be included in this EDD but QC results (other than replicates) will not be incorporated into the regional database at this time.

It is understood that not all fields will contain a value. Empty fields will be represented as "NULLs" in the Microsoft Access database.

Non-Analytical Data

There are some data which will be stored in the regional database but which do not fit into the same format as the analytical data. Examples of these data are hydraulic parameters and soil material properties as described in Appendices G and H. Separate data tables will be developed to hold these data, which are not part of the standard EDD deliveries.

Groundwater level monitoring data will be delivered separately from the analytical data and will have its own EDD guidance document.

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 which become obsolete. Obsolete samples should be provided in an auxiliary table named "obsolete_samples" included in the first EDD delivery after the data have been rendered obsolete.

CAS Identifiers

Assigning a unique identifier for each chemical reported is a major challenge in developing a unified database. For purposes of the EDD, CAS numbers will be used to identify chemicals whenever possible. However, some substances may not have a CAS number, while others may in practice be referred to by more than one CAS number. To address this issue, this document provides a comprehensive list of identifiers and "analyte names" to be used in all chemical EDDs. This list was previously included in this document as Appendix I. However, due to the size of the table, it has now been moved to a separate Microsoft Excel spreadsheet, which can be downloaded from http://ndep.neptuneinc.org (click on the "EDD Lookup Tables" link in the table of contents at the upper left of the home page). All values reported must be identified with a "cas_id" as listed in the official CAS ID/Analyte Name list.

Appendix I was developed based on all the data that has been incorporated into the all companies database to date. NDEP recognizes that this list will continue to be refined and expanded as new chemicals are introduced. If an EDD contains chemicals (or other parameters) which are not currently in Appendix I, a list of identifiers and descriptions of those parameters must be provided in a table named "cas_id_new" containing two fields, "cas_id" and "analyte_name."

Given the variety of ways in which CAS ids are employed in actual data collection, it is possible that the companies may not agree with all the choices made in assembling the Appendix I table. The companies are encouraged to provide feedback with the goal of making the table as easy to use as possible.

Lookup Tables

The latest version of all lookup tables which are attached as appendices to this document will also be made available online as downloadable MS Excel files from the website which hosts the regional database. The URL for the website is http://ndep.gisdt.org

Asbestos

NDEP has recently provided technical guidance surrounding the calculation of asbestos related risk (*Asbestos-Related Risk Assessment Guidance* dated April 24, 2009). The reporting of asbestos in the Companies' supplied EDD should follow this guidance. Both the asbestos fibrous variety (chrysotile or amphibole) and the size and shape influence the asbestos-related risk (ARR). The modified elutriator method described in that document along with TEM analysis is the preferred technique for asbestos analysis associated with the BMI Complex and Common Areas. 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/g $_{PM10}$ 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 are >5 µm but less than 10 µm in length or are of less than **0.4** µm in diameter and > 10 µm in length. These details are consistent with a report of both the Long and Total asbestos structures in each sample.
An example of the information that should be reported for an asbestos sample would include (subset shown here of all fields) the following. Note, we have removed the asbestos_type field from the prior EDD structure.

Field Name	Record (what is to be reported in the EDD)
sample_id_field	MC1-J07
Cas_id	12001-29-5L
Analyte_name	Long Chrysotile Protocol Structure*
Result_reported	3
Asbestos_analytical_sensitivity	2.400E+06**
Asbestos_sensitivity_units	s/gPM10

*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.

** This should be the mean value, not the 95% UCL value.

EDD Data Fields

The table below describes the meaning and purpose of each EDD data field. Data requirements for each field are described in Appendix A.

Required Fields:

Short Description	Field Name	Detailed Description
DVSR Identification	dvsr_id	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. Format: ZZZZZ-YYYY-XXXX where ZZZZZ = company, or background (BKG), YYYY = number of the DVSR, XXXX = year.
Sub-area or parcel designation	sub_area	A unique designation for each sub-area or parcel.
LOU designation	lou	A designation for LOU associated with the sample. If no LOU is associated with the sample this field should be labeled as "NULL".
Sample top depth	sample_top_depth	Sample top depth in feet. For Companies which only record a single sample depth, this value should go in both the sample_top_depth and sample_bottom_depth fields.
Sample bottom depth	sample_bottom_depth	Sample bottom depth in feet. For Companies which only record a single sample depth, this value should go in both the sample_top_depth and sample_bottom_depth fields.
Northing Coordinate	northing	Northing coordinate of the sample in NAD 1983 State Plane Nevada East feet
Easting Coordinate	easting	Easting coordinate of the sample in NAD 1983 State Plane Nevada East feet
Sample Identification - Field	sample_id_field	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.

Short Description	Field Name	Detailed Description
Sample Identification - Laboratory	sample_id_lab	The ID of the sample used at the laboratory. This ID should generally be unique to the sample and also 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.
Sample Collection Information	sample_collection_comment	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.
Laboratory Identification/ code	lab_id	A unique identification of each laboratory, 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.
SDG- Sample Delivery Group	sdg_id	The Sample Delivery Group identification supplied by the laboratory.
Analytical Batch Identification	batch_id	The analytical batch identification supplied by the laboratory.
Location Identification	location_id	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. In the case of wells, the identifier should match the appropriate well name in the All Wells Database currently maintained by BRC. 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 which will allow locations to be uniquely identified across companies.
hydrogeologic	hydro	The designation of the water-bearing zone associated with the sample: Shallow Zone, Middle Zone, or Deep Zone. This hydrogeologic nomenclature is described in the January 6, 2009 letter (*Hydrogeologic and Lithologic Nomenclature Unification)* from NDEP to the Companies. This field should be populated for all groundwater samples.

Short Description	Field Name	Detailed Description
lithologic	litho	The designation of the lithologic nomenclature tags: Qal (Quaternary Alluvium), xMCf (transitional Muddy Creek formation), or UMCf (Upper Muddy Creek formation). This lithologic nomenclature is described in the January 6, 2009 letter (*Hydrogeologic and Lithologic Nomenclature Unification)* from NDEP to the Companies. This field should be populated for all groundwater, soil gas, and soil samples.
Sample Matrix Identification/ code	matrix	A short code that designates the matrix of the sample. A recommended set is provided in Appendix B.
Sample Type Identification/ code	sample_type	A short code that designates the sample type (e.g. Field Duplicate as FD). A recommended set is provided in Appendix C.
Analytical Method Name/code	analytical_method	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 recommended format is provided in Appendix D.
Preparation Method Name/code	preparation_method	An identifier for the preparation method used for that suite of analyses. Use the same guidelines as found in Appendix D.
Analytical Suite	analytical_suite	A short code that designates the analytical suite, such as SVOC. A recommended list is provided in Appendix E.
Analyst Name	analyst_name	The name, or initials, of the analyst that performed the analysis. This field is required for asbestos results.
Total or Dissolved	filtered_flag	A flag T (true) or F (false) indicating whether the sample was filtered. T indicates the aqueous sample was filtered and is dissolved.
Sample Date	sample_date	The Year, Month, and Day of sample collection. Requested format: XXXXYYZZ, where XXXX=year, YY= month, and ZZ = day of month. This same format shall be used for all dates.
Sample Time	sample_time	The Hour:Minute:Seconds sample was collected. A 24 hour format is requested: 12:15:00 indicates 15 minutes after Noon. One hour later would be 13:15:00.
Preparation Date	prep_date	The Year, Month, and Day of laboratory sample preparation. Requested format: XXXXYYZZ, where XXXX=year, YY= month, and ZZ = day of month. This same format shall be used for all dates.
Preparation Time	prep_time	The Hour:Minute:Seconds the sample was prepared. A 24 hour format is requested: 12:15:00 indicates 15 minutes after Noon. One hour later would be 13:15:00.

Short Description	Field Name	Detailed Description
Analysis Date	analysis_date	The Year, Month, and Day of sample analysis. Requested format: XXXXYYZZ, where XXXX=year, YY= month, and ZZ = day of month. This same format shall be used for all dates.
Analysis Time	analysis_time	The Hour:Minute: Seconds the sample was analyzed. A 24 hour format is requested: 12:15:00 indicates 15 minutes after Noon. One hour later would be 13:15:00.
CAS id or short code	cas_id	The Chemical Abstracts Society designation for the analyte, or a suitable code if no CAS designation for the analyte in question. Approved codes are listed in Appendix I. Asbestos types are treated as chemicals, in that each asbestos type (Total Chrysotile Protocol Structure, Long Chrysotile Protocol Structure, Long Amphibole Protocol Structure, Total Amphibole Protocol Structure, Long Asbestos Protocol Structure, Total Asbestos Protocol Structure) has its own code This field is also used to capture physical parameters. Appropriate physical parameters are provided in Appendix F.
Chemical Name	analyte_name	A unique name for the analyte which corresponds to the code in the cas_id field. Approved names are listed in Appendix I.
Result Type Code	result_type	A short code to indicate the type of result for this record. Acceptable values include: TG (Target), SURR (Surrogate), IS (Internal Standard), SC (Spike Compound), TIC (tentatively Identified Compound). Others should be recommended by the Companies during review of this EDD guidance.
Initial or Reanalysis	reanalysis_flag	The field should contain either “Initial” or “Reanalysis” or similar designations to indicate whether the result is from the initial analysis or reanalysis. A sample that requires dilution and subsequent reanalysis would be so designated as would a sample that required re-extraction.
Lab Reported Result	result_reported	The analytical value for that analyte (or physical parameter) as reported by the laboratory. For asbestos, this is the number of structures. This field should always contain a value. In cases where no value is provided by the laboratory (this should be non-radionuclides only), the detect_flag_ra and detect_flag_fod fields should be set to F and result_reported should contain the value from the sample_quantitation_limit field
Result Units	result_units	Units associated with the reported value.

Short Description	Field Name	Detailed Description
Reported Results Uncertainty	result_uncertainty	The uncertainty value associated with the laboratory reported results. This will apply to radionuclides and possibly other analytes (e.g. 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).
Asbestos Sensitivity	asbestos_analytical_sensitivity	The analytical sensitivity associated with the asbestos results. This should be the Mean value, not a 95% UCL value.
Asbestos Sensitivity Units	asbestos_sensitivity_units	The units associated with the asbestos sensitivity value (structures/gram usually as S/g PM10).
Detect Flag (risk assessment)	detect_flag_ra	A flag, T (true) or F (false), to indicate whether the value is considered a detection or not for purposes of risk assessment. Values less than the Sample Quantitation Limit (SQL) are considered Not Detected, except in the case of radionuclides. For all radionuclide results, the flag will always equal T (true) indicating a value (positive or negative) was reported, regardless of the value relative to the MDA. Other factors, such as blank contamination, can also cause a value to be reported as Not Detected – in these cases the reason for considering the value as Not Detected should be indicated in the final_validation_qualifier field.
Detect Flag (frequency of detection)	detect_flag_fod	A flag, T (true) or F (false), to indicate whether the value is considered a detection or not for purposes of frequency of detection. Values less than the Sample Quantitation Limit (SQL) for non-radionuclides or the MDA for radionuclides are considered Not Detected – all other values are considered Detected. Other factors, such as blank contamination, can also cause a value to be reported as Not Detected – in these cases the reason for considering the value as Not Detected should be indicated in the final_validation_qualifier field.
Method Detection Limit	method_detection_limit	The Method Detection Limit for the analyte. This definition should follow the December 3, 2008 NDEP guidance entitled *Detection Limits and Data Reporting*
Sample Quantitation Limit	sample_quantitation_limit	The SQL for the analytes. This definition should follow the December 3, 2008 NDEP guidance entitled *Detection Limits and Data Reporting*
Practical Quantitation Limit	practical_quantitation_limit	The Practical Quantitation Limit (PQL) for the analyte. This definition should follow the December 3, 2008 NDEP guidance entitled *Detection Limits and Data Reporting*
Minimum Detectable Activity	minimum_detectable_activity	The Minimum Detectable Activity, also known as Minimum Detectable Concentration. This is used for radionuclide results.

Short Description	Field Name	Detailed Description
Percent Moisture	percent_moisture	The percentage of moisture of a solid sample. Please provide this record as a whole number, such as 95 for 95% moisture (no decimal).
Dilution Factor	dilution_factor	Any dilution factor used to arrive at the final reported value.
Laboratory Qualifier	lab_qualifier	The qualifier that may have been assigned to a reported value by the laboratory that performed the analysis.
Was result validated	validation_flag	A flag, T (true) or F (false). T indicates the value was validated after the laboratory reported the value.
Validation Stage	validation_stage	The stage to which the data has been validated. This stage designation should be consistent with the NDEP Guidance dated April 19, 2009. Stage 2B or 4 are the anticipated values. The terms used need to be defined in the DVSR.
Final Validation Qualifier	final_validation_qualifier	The final non-laboratory qualifier applied to the value.
Final Validation Reason Codes	final_validation_reason_codes	The reason code(s) that corresponds to the final Validation Qualifier (if more than one code, 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. All validation values should be consistent with the December 3, 2008 NDEP guidance entitled *Detection Limits and Data Reporting* document. For example, any reference to a sensitivity indicator (SQL, PQL etc) should be consistent with that guidance and only those sensitivity indicators should be used.
Validation Reason Code	validation_reason_code	Individual validation reason code used in lookup table.
Final Validation Reason Description	validation_reason	The description of the reason code. For example, Holding Time Exceeded. The description should be consistent with the DVSR.
Comment Field (Sample)	sample_comment	A field to include comments associated with a specific sample.
Comment Field (Result)	result_comment	A field to include comments associated with a specific result.

Appendix A: EDD Database Tables and Field Requirements

The EDD should be a Microsoft Access database containing at least four tables: a samples table, a results table, a locations table, and a validation_reason table. The samples table will contain sample metadata and will have field_sample_id as its primary key. The results table will link to the samples table using field_sample_id as a foreign key. The validation reason will have rows consisting of the dvsr_id, the company-specific validation_reason_code, and the corresponding reason description.

For convenience, the EDD database should also contain a query that links the samples, location, and result tables, allowing a "flat-file" view of the data.

Details of the fields included in each table and the requirements for each field are shown in the table below.

Field Name	Table	Data Type	Field Requirements
dvsr_id	samples	text	not empty
sample_id_field	samples	text	not empty and unique (primary key); must not appear in other DVSRs
sample_top_depth	samples	numeric	not empty for matrix SO; empty for other matrices
sample_bottom_depth	samples	numeric	not empty for matrix SO; empty for other matrices
matrix	samples	text	not empty; value must be taken from Appendix B
sample_type	samples	text	not empty; value must be taken from Appendix C
sample_date	samples	date	valid date
sample_time	samples	time	valid time
filtered_flag	samples	text	not empty for matrix WG or WS; empty for other matrices
percent_moisture	samples	numeric	not empty for matrix SO and SD; empty for other matrices
litho	samples	text	not empty for matrix SO, WG, or AG; empty for other matrices
sample_collection_comment	samples	text	optional
sample_comment	samples	text	optional
sample_id_field	results	text	not empty; value must also be found in the samples table
analytical_method	results	text	not empty; must follow guidance in Appendix D
preparation_method	results	text	not empty for those analytical methods that also have a published method that corresponds to preparation, extraction, digestion, clean-up (e.g. 3050A), otherwise empty
analytical_suite	results	text	not empty; value must be taken from Appendix E
analyst_name	results	text	not empty for asbestos, optional for all others methods at this time.
analysis_date	results	date	valid date
analysis_time	results	time	valid time
prep_date	results	date	valid date
prep_time	results	time	valid time

Field Name	Table	Data Type	Field Requirements
analyte_name	results	text	not empty; value must be taken from CAS ID/Analyte Name lookup table available for download at http://ndep.neptuneinc.org/ndep_gisdt/home/index.xml or from the NDEP web site
cas_id	results	text	not empty; value must be taken from CAS ID/Analyte Name lookup table available for download at http://ndep.neptuneinc.org/ndep_gisdt/home/index.xml or from the NDEP web site
result_type	results	text	not empty
reanalysis_flag	results	text	not empty
result_reported	results	numeric	not empty; if final_validation_qualifier is U or UJ, result_reported should equal the SQL, unless the value has been censored to a higher level due to blank contamination or other mitigating factors (in this case, the reason for raising the reported value above the sample_quantitation_limit should be very apparent from the final validation qualifier, reason code, and validation reason); if final_validation_qualifier is not U or UJ, result_reported should contain the result reported by the lab (which should be greater than or equal to the SQL)
result_units	results	text	not empty
result_uncertainty	results	numeric	not empty for radionuclides and XRF, otherwise optional (may be empty) at this time.
asbestos_analytical_sensitivity	results	numeric	not empty for asbestos results, otherwise empty
asbestos_sensitivity_units	results	text	not empty for asbestos results, otherwise empty
detect_flag_ra	results	text	"Y" for all radionuclides (even in the case of blank contamination); for non-radionuclides, same as detect_flag_fod
detect_flag_fod	results	text	"Y" where result_reported > sample_quantitation_limit, "N" otherwise (this includes values censored by the lab) UNLESS validator provides another reason why value should be "N" (non-detect) even though > SQL (see guidance for result_reported)
method_detection_limit	results	numeric	Optional, should be defined in DVSR if used
sample_quantitation_limit	results	numeric	empty for radionuclides, asbestos, and many GENERAL analytical suites (e.g. physical) that do not report sensitivity indicators; otherwise not empty
practical_quantitation_limit	results	numeric	empty for radionuclides, asbestos, and many GENERAL analytical suites (e.g. physical) that do not report sensitivity indicators; otherwise not empty
minimum_detectable_activity	results	numeric	empty except for radionuclides
dilution_factor	results	numeric	empty or 1 for asbestos and physical parameters never diluted; otherwise, not empty
sample_id_lab	results	text	not empty
lab_id	results	text	not empty
sdg_id	results	text	not empty
batch_id	results	text	not empty if laboratory assigns a batch id in the laboratory report
lab_qualifier	results	text	

Field Name	Table	Data Type	Field Requirements
validation_flag	results	text	not empty
validation_stage	results	text	not empty, unless validation_flag equals F
final_validation_qualifier	results	text	if final_validation_reason_codes has a value, this field cannot be empty; otherwise, empty (either both final_validation_qualifier and final_validation_reason_codes should have a value or both should be empty); also, if the lab qualifies a sample, and during the data validation there is concurrence with that qualification (especially censoring), there should also be a final_validation_qualifier and reason code.
final_validation_reason_codes	results	text	if final_validation_qualifier has is a value, this field cannot be empty; otherwise, empty (either both final_validation_qualifier and final_validation_reason_codes should have a value or both should be empty); also, if the lab qualifies a sample, and during the data validation there is concurrence with that qualification (especially censoring), there should also be a final_validation_qualifier and reason code.
result_comment	results	text	optional
location_id	locations	text	not empty
sub_area	locations	text	not empty
lou	locations	text	optional
northing (number)	locations	numeric	not empty
easting (number)	locations	numeric	not empty
hydro	locations	text	not empty for matrix WG; empty for other matrices
dvsr_id	validation_reason	text	not empty
validation_reason_code	validation_reason	numeric	not empty
validation_reason	validation_reason	text	not empty

The following table lists fields for the two optional EDD data tables “obsolete_samples” and “cas_id_new”:

Field Name	Table
sample_id obsolete_reason	**obsolete_samples**
cas_id analyte_name	**cas_id_new**

Appendix B: Sample Matrix Identification/Code

matrix	Sample Matrix Identification
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 Identification/Code

Sample Type Code	Description
AB	Ambient Conditions Blank
BD	Blank Spike Duplicate
BS	Blank Spike
DIL	Diluted Sample
EB	Equipment Blank
ER	Equipment Rinse
FB	Field Blank
FD	Field Duplicate Sample
FR	Field Replicate
FS	Field Spike
FLD	Field analyses such as pH, temperature, specific conductance
KD	Known (External Reference Material) Duplicate
LB	Lab Blank
LD	Lab Duplicate
LCS	Lab Control Spike
LCSD	Lab Control Spike Duplicate
LR	Lab Replicate
MB	Material/Method Blank
MBD	Material/Method Blank Duplicate
MS	Matrix Spike Lab
MSD	Lab Matrix Spike and Spike Duplicate pair considered as one sample
NORM	Normal Environmental Sample taken in field
ORIG	Original sample in laboratory
SPB	Soil Prep Blank
WPB	Water Prep Blank
RD	Regulatory Duplicate
RE	Re-analysis
RM	Known (External Reference Material) Rinsate
RN	Rinsate
SD	Lab Matrix Spike Duplicate considered as separate from spike
SPT	A field split sample
TB	Trip Blank
TBD	Trip Blank Duplicate
WT	Waste
FDMS	A combination field duplicate matrix spike

Appendix D: Analytical Method Name/Code Guidance

Recommended format and guidance for analytical names:

- If the method is based on the United Stated Environmental Protection Agency (EPA) SW-846, start the name with "SW-" followed by the number and any applicable letter: XXXXc such as 8260b (SW-8260b).
- 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 that, even if the digit is zero. Start the name with EPA: 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: EPA-540-R97-028.
- If the method is based on an ASTM method, include ASTM- prior to the letter and number designation: ASTM D5755-03. Be sure to include the Based Designation (D5755) and Edition-Version (-03).
- If the method is based on Standard Methods for the Examination of Water and Wastewater, include "SM" prior to the number along with the Base Designation (7500) and the method version (-Ra). The results would be "SM7500-Ra." The 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 (SOP). The version of the method needs be included in the DVSR and may also be incorporated into the EDD.

Preparation methods are not absolutely required in the EDD but a field (preparation_method) is included in the EDD structure to provide this information. However, all preparation methods that are distinct from the determination method must be included in the DVSR report. If preparation methods are included in the EDD they need to be in a separate column.

A designation indicating that 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 Name/Code

Analytical Method Code	Description
ALDH	Aldehyde analysis
ASB	Asbestos
CRVL	Hexavalent chromium
CYAN	Cyanide
DIO_FUR	Dioxin and Furan
FIELD	Field measurements
GENERAL	Wet chemistry type measurements anions, hardness, bicarbonate, alkalinity, perchlorate, ammonia, bromide, TKN, etc
HERB	Herbicides
METALS	Metals and elements using ICP, AA, ICP-MS
ORG_ACID	Organic Acids analysis
PCB	PCB analysis, aroclors or congeners.
WPH	pH of aqueous sample
OCPEST	Organo-chlorine pesticide
OPPEST	Organo-phosphate pesticide
SOLIDS	TDS, TSS
SVOC	Semi-Volatile Organic Compounds, exclusive of Pesticides, PCBs, and PAHs.
TOC	Total Organic Carbon
TPH	Total Petroleum Hydrocarbons, all molecular weights
VOC	Volatile Organic Compounds
XRFMetals	Metals and elements using XRF.
RADS	Radionuclides
PAH	Polyaromatic Hydrocarbon
TEM	Transmission Electron Microscopy (asbestos)
PLM	Polarized Light Microscopy (asbestos)
XRD	X-ray Diffraction (asbestos and metals)

Appendix F: Field Measurements

cas_id	Physical Parameter (analyte_name)
DO	Dissolved Oxygen
TEMP	Groundwater Temperature (°C)
EC	Electrical Conductivity
ORP	Oxidation Reduction Potential - Redox
WPH	Aqueous pH

Appendix G: Hydraulic Parameters

ID	Description
HYCO	Hydraulic Conductivity
STOR	Storativitity
TRANS	Transmissivity

Appendix H: Soil Material Properties

ID	Description
CEC	Cation Exchange Capacity
DBD	Dry Bulk Density
GSD	Grain Size Distribution
USCS	Unified Soil Classification System Description
FOC	Fraction Organic Carbon
MSC	Munsell Soil Color
SGR	Specific Gravity
SPH	Soil pH
TOP	Total Porosity
VMC	Volumetric Moisture Content
VWC	Volumetric Water Content

Appendix I: CAS IDS/ANALYTE CODES

Because the CAS ID/Analyte Code table is so large, it is no longer included in this document, but is now available as a separate Microsoft Excel spreadsheet. The latest version of the spreadsheet is available on the **BMI Complex, Common Areas, and Vicinity Database (BMIdbase)** web site at http://ndep.neptuneinc.org/ndep_gisdt/home/index.xml. On the home page, click on the "EDD Lookup Tables" link in the table of contents at the left.

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

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 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
        - 4376-18-5 "1,2-Benzenedicarboxylic acid, monomethyl"
        - 544-25-2 "1,3,5-Cycloheptatriene"
        - 628-41-1 "1,4-Cyclohexadiene"
        - 109719-94-0 "13C-1,2,3,4,7,8,9-HpCDF"
        - 109719-80-4 "13C-1,2,3,4,7,8-HxCDD"
        - 116843-03-9 "13C-1,2,3,6,7,8-HxCDF"
        - 116843-04-0 "13C-1,2,3,7,8,9-HxCDF"
        - 116843-05-1 "13C-2,3,4,6,7,8-HxCDF"
        - 116843-02-8 "13C-2,3,4,7,8-PeCDF"
        - 2733-88-2 "15-Tetracosenoic acid, methyl"
        - 1454-85-9 1-Heptadecanol
        - 2642-82-2 "2,2-Bis[p-chlorophenyl]ethanol"
        - 21854-95-5 "2,2'-Dichlorobenzil"
        - 85-29-0 "2,4'-Dichlorobenzophenone"
        - 563-80-4 "2-Butanone, 3-methyl-"
        - 37777-76-7 2-Chloro-6-fluorophenylacetic acid
        - 108-43-0 3-Chlorophenol
        - 552-54-5 "4H-1-benzopyran-4-one, 3,5-dih"
        - POROS_AIR Air Filled Porosity
        - 14683-10-4 Antimony-124

- 14234-35-6 Antimony-125
- 13981-41-4 Barium-133
- 14798-08-4 Barium-140
- 100-66-3 "Benzene, methoxy-"
- 6320-03-2 "Benzenethiol, 2-chloro-"
- 51-44-5 "Benzoic acid, 3,4-dichloro-"
- 13966-02-4 Beryllium-7
- 62338-43-6 "Bicyclo[2.2.2]octa-2,5-diene,"
- BULK_DENS Bulk Density
- 123-72-8 Butyraldehyde
- 13982-30-4 Cerium-139
- 13967-74-3 Cerium-141
- 14762-78-8 Cerium-144
- 14234-29-8 Cesium-136
- 13898-47-0 Chlorite
- 14392-02-0 Chromium-51
- 61568-43-2 cis-2.4-Dimethylthiane
- CLAY CLAY
- COARSE SAND COARSE SAND
- 14093-03-9 Cobalt-56
- 55963-79-6 "Cyclohexane, 1,2,3,4,5,6-hexachloro-, .g"
- 540-97-6 "Cyclohexasiloxane, dodecamethyl-"
- 822-50-4 "Cyclopentane, 1,2-dimethyl-, t"
- 1759-58-6 "Cyclopentane, 1,3-dimethyl-, t"
- 96-37-7 "Cyclopentane, methyl-"
- Delta-D Delta-D
- Delta-O Delta-O
- 542-88-1 Dichloromethyl ether
- 352-93-2 Diethyl sulfide
- 122-39-4 Diphenylamine
- 14683-23-9 Europium-152
- 15585-10-1 Europium-154
- 14391-16-3 Europium-155
- FINE SAND FINE SAND
- FOC Fraction organic Carbon
- HYCO HYDRAULIC CONDUCTIVITY
- 14694-69-0 Iridium-192
- 14596-12-4 Iron-59LIQLIM LIQUID LIMIT13966-31-9 Manganese-54
- MEDIUM SANDMEDIUM SAND
- 13982-78-0 Mercury-203
- 5162-3-08 "Methanone, [2-chlorophenyl]phenyl-"
- 112-40-3 n-Dodecane
- 14269-74-0 Neodymium-147
- 13968-59-7 Neptunium-239
- 14681-63-1 Niobium-94
- 13967-76-5 Niobium-9592-71-7 "Oxazole, 2,5-diphenyl-"
- 92-71-7 "Oxazole, 2,5-diphenyl-"
- 7440-05-3 Palladium
- 37680-73-2 PCB 101 [BZ]
- 68194-06-9 PCB 102 [BZ]
- 70362-41-3 PCB 108 [BZ]/107 [IUPAC]
- 18259-05-7 PCB 116 [BZ]
- 68194-11-6 PCB 117 [BZ]
- 74472-39-2 PCB 125 [BZ]
- 2974-90-5 PCB 13 [BZ]

- 35065-28-2 PCB 138 [BZ]
- 38380-04-0 PCB 149 [BZ]
- 74472-44-9 PCB 163 [BZ]
- 59291-65-5 PCB 168 [BZ]
- 38444-84-7 PCB 20 [BZ]
- 38444-86-9 PCB 33 [BZ]
- 52663-59-9 PCB 41 [BZ]
- 41464-40-8 PCB 49 [BZ]
- 33284-53-6 PCB 61 [BZ]
- 32598-12-2 PCB 75 [BZ]
- 55312-69-1 PCB 86 [BZ]
- 38380-02-8 PCB 87 [BZ]
- 55215-17-3 PCB 88 [BZ]
- 68194-07-0 PCB 90 [BZ]
- 73575-56-1 PCB 93 [BZ]
- 1560-93-6 "Pentadecane, 2-methyl-"
- %SAND_C Percent SAND - Coarse
- %SAND_F Percent SAND - Fine
- 119-47-1 "Phenol, 2,2'-methylenebis[6-[1"
- 1200-09-5 "Phenol, 4-[3-methyl-2-butenyl]"
- 14265-44-2 PHOSPHATE
- 85-44-9 Phthalic anhydride
- PLASLIM PLASTIC LIMIT
- PLASIND PLASTICITY INDEX
- POROSITY POROSITY
- 14834-73-2 Promethium-144
- Pm-146 Promethium-146
- 13967-48-1 Ruthenium-106
- SILT SILT
- 378784-24-8 Silver-110m
- 13966-32-0 Sodium-22
- 14808-79-8-Diss Soluble Sulfate
- PERM_AIR SPECIFIC PERMEABILITY TO AIR
- PERM_WATER SPECIFIC PERMEABILITY TO WATER
- 110-01-0 "Thiophene, tetrahydro-"
- 13966-06-8 Tin-113
- POROS_FLUID Total Pore Fluid Saturations
- TOP Total Porosity
- 10028-17-8 Tritium
- 13982-36-0 Yttrium-88
- 13982-39-3 Zinc-65
- 13967-71-0 Zirconium-95