

DNREC v4 Format Release Notes

Published: July 27, 2020

The following list of changes have been made in the DNREC v4 Format to improve incoming data quality.

The latest DNREC Format and reference value file (RVF) is available for download here: <https://earthsoft.com/products/edp/edp-format-for-dnrec/> (both published July 15, 2020).

NOTE: It is required that data providers use the RVF published on or after July 15, 2020 with the new DNREC v4 Format. Significant changes were made to DNREC’s reference value lists to work in tandem with the format updates.

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Location

- **Data_Provider** – New check: If data_provider = 'UNKNOWN', then throw an error: “A valid Data Provider must be entered.”
- **Sys_loc_code** – Created a check to ensure that valid coordinates are provided for normal samples.
- **X_coord** – Renamed to “Easting”.
- **Y_coord** – Renamed to “Northing”.
- **X_coord and Y_coord** – Removed ability for submitting locations with 0, 0 coordinates. Throw an error that “Coordinates must be valid.”
- **Alt_x_coord** –
 - Renamed to “Longitude”.
 - Changed the description to “Sampling location Easting or X coordinate in DE State Plane NAD 83 meters.”
- **Alt_y_coord** –
 - Renamed to “Latitude”.
 - Changed the description to “Sampling location Northing or Y coordinate in DE State Plane NAD 83 meters.”
 - Switched order so “Latitude” is before “Longitude.”
- **Alt_x_coord and alt_y_coord** – Removed ability for submitting locations with 0, 0 coordinates. Throw an error that “Coordinates must be valid.”
- **Elev_unit** – Changed field description to “Unit of measurement for elevations. Units must be in ft.”
- **Horz_accuracy_unit** – Updated the enumerated list to include “Unknown.”
- **Elev_accuracy_unit** –
 - Updated the enumerated list to include “Unknown.”
 - Added check: If elev_accuracy_value is populated, then elev_accuracy unit is required.
- **Subfacility_code** – Changed “or previous” from the end of the field description to “in the current EDD.”
- **Tax_parcel_id** – Changed “loc_district_code” to “tax_parcel_id”.
- **Total_depth** –
 - Updated field description “Total_depth is required when loc_type = DIRPUSH, DomWell, ExWell, InjWell, IrrWell, MonWell, PRW, ProcessWtr, ProdW, PubWell, SoilBore, SubSoil, TP, PZMTR.”
 - Modified existing check to include new values: Well, SED, SOILBORE, STOCKPILE, SUBSOIL, SURF_SOIL, SUBSLAB, SVP, PIEZOMETER, DIRPUSH, SOILGAS.
- **Datum_unit** –
 - Added a check: If datum_value is populated, then datum_unit is required.
 - Changed from a lookup of rt_unit to an enumerated list consisting 'ft', 'm'.
 - Changed field description to “Unit of measure for datum”.
- **Datum_value** – Changed the field description to “Datum elevation, must be in ft or m.”

- **Loc_major_basin** – Updated field description to say “The first 12 digits “ and changed the basin code example from ‘2060008’ to ‘000002060008’.
- **Parent_loc_code** – Added parent_loc_code to section.
- **Loc_purpose** – Increased the field length from Text (20) to Text (50).
- **Coord_sys_desc** –
 - Added to enumeration list: SP NAD 27 DE 0700.
 - Added WARNING: If 'SP NAD 27 DE 0700' is selected, then a warning is thrown: 'SP NAD 83 DE 0700 is required for all current data. SP NAD 27 DE 0700 is intended for historical data and should only be used with the approval of the DNREC Project Officer.'
- **Observation_date** – Added check: If coord_sys_desc = SP NAD 27 DE 0700, then observation_date is required.
- **Coordinates** –
 - Added coordinate conversion between SP NAD 27 DE 0700 and LAT LONG.
 - Added the reverse coordinate conversion from LAT LONG to the coord_sys_desc options, SP NAD 27 DE 0700 and SP NAD 83 DE 0700.
- **Subfacility_code** – Changed the description to match the Subfacility_v4.subfacility_code description.
- **Well fields** – Removed dt_well, dt_well_segment, dt_water_level and dt_water_table mappings from the Location section:
 - Remove fields from section:
 - depth_to_bedrock
 - depth_to_top_of_screen
 - depth_to_bottom_of_screen
 - top_casing_elev
- **Loc_Type** –
 - If loc_type contains ‘Well’ or ‘PZMTR’, then a record in Well_v4 is required.
 - Changed MW to MONWELL in the field description, to match the new reference value in RT_LOCATION_TYPE.
- **Reference_Point** – If loc_type contains 'Well' or ‘PZMTR’, then reference_point is required.

Drill Activity

- **Sys_loc_code** – Special characters are not allowed: @ & # % ! = + * < > “ ‘ | \ ? [] { }
- **Diameter_unit** –
 - Added check: If diameter is populated, then diameter_unit is required.
 - Changed from a lookup of rt_unit to an enumerated list consisting of: 'in', 'ft', 'mm', 'cm'
 - Updated field description: Unit of measure for diameter, inches (in), feet (ft), millimeters (mm), or centimeters (cm)
- **Drill_date** – Changed field description to include MMDDYYYY date format.
- **Remark** – Added remark field to section.

- **Contractor** – Added a contractor field. Made it a lookup to rt_company. Both company_code and company_name are shown in the drop-down list.
- **Task_code** – Added task_code to section. Updated the task_code enumeration list:
 - SC = Site Characterization
 - RD = Remedial Design
 - RIFS = Remedial Investigation/Feasibility Study
 - RA = Remedial Action
 - IRA = Interim Remedial Action
 - LTS = Long-Term Stewardship Phase
 - PM = Periodic Monitoring
 - NRS = Non-Routine Sampling

Downhole Point

- **Param_code** – Increased field length to allow 255 characters.

Lithology

- **Sys_loc_code** – Special characters are not allowed: @ & # % ! = + * < > “ ‘ | \ ? [] { }
- **Material_type** –
 - Renamed “material_type” to “material_name”.
 - Removed the last sentence of the field description.
- **Observation** –
 - Made field required.
 - Reordered to be after “material_name” field.
 - Changed description to “Full description of lithological unit interval as written in the field notes.”
- **Geo_unit_code_1** –
 - Renamed geo_unit_code_1 field to “DGS_Formation”.
 - Made it a look up to rt_geologic_unit with geo_unit_type = 'DGS Formation'.
 - Field description: Delaware Geologic Survey Formation Unit description.
- **Geo_unit_code_2** –
 - Renamed geo_unit_code_2 field to “DGS Aquifer”.
 - Made it a look up to rt_geologic_unit with geo_unit_type = 'DGS Aquifer'.
 - Field description: Delaware Geologic Survey Aquifer description.
- **Geo_unit_code_3** –
 - Renamed geo_unit_code_3 field to “USGS_Geo_Unit”
 - Made it a look up to rt_geologic_unit with geo_unit_type = 'USGS Geologic Unit'.
 - Field description: USGS Geologic Unit Codes for the state of Delaware
<https://mrdata.usgs.gov/geology/state/geog-units.html>.
- **Classification_system** –
 - Added new field.
 - Maps to dt_lithology.custom_field_2, with a look up to rt_material.material_desc.
 - Reordered after the observation field.

- Added an enumeration list for data providers to indicate which soil classification system they are using: USDA, USCS, ASTM, OTHER
- **Geo_unit_code_4** – Added a new field. Not defined yet.
- **Geo_unit_code_5** – Added a new field. Not defined yet.
- **Start_depth** – Removed "Must be in feet." from field description.
- **End_depth** –
 - Made field required.
 - Moved next to start_depth.
 - Removed "Must be in feet." from field description.

Well

- **Datum_unit** – Changed from a lookup of rt_unit to an enumerated list consisting of 'ft', 'm'.
- **Depth_unit** – Changed from a lookup of rt_unit to an enumerated list consisting of 'ft', 'm'.
- **Stickup_height and sump_length** – Removed "Must be in feet." from field descriptions
- **Stickup_unit** –
 - Added a check: If stickup_height is populated, then stickup_unit is required.
 - Changed from a lookup of rt_unit to an enumerated list consisting of 'ft', 'm'.
 - Changed the description to “must be feet (ft) or meters (m).”
- **Sump_unit** –
 - Added a check: If sump_length is populated, then sump_unit is required.
 - Changed from a lookup of rt_unit to an enumerated list consisting of 'ft', 'm'.
 - Changed the description to “Unit of measure for the sump length, must be feet (ft) or meters (m)”.
- **Sys_loc_code** – Special characters are not allowed: @ & # % ! = + * < > “ ’ | \ ? [] { }
- **Top_casing_elev** – Removed requirement of this field.
- **Well_status** –
 - Added enumeration list for well_status with the values: 'INACTIVE', 'DESTROYED', 'ACTIVE', 'DAMAGED', 'ABANDONED/SEALED', 'LOST/MISSING', 'PROPOSED', 'TEMPORARY'.
 - Added a check: If well_status = 'ACTIVE', then top_casing_elev and datum_collection_method_code are required.
- **Abandonment_date** –
 - Added field to the section.
 - Moved to after well_status field.
 - Field description: “Date the well was abandoned (MMDDYYYY format).”
 - Added check: If well_status = Abandoned/Sealed, abandonment_date is required.
- **Datum_desc** –
 - Default value is “top of casing”.
 - Added enumeration list: Top of Casing, Ground Surface, Top of Outer, Protective Casing, Top of Inner Protective Casing, Observation Port.

Well Construction

- **Depth unit** –
 - Changed from a lookup of `rt_unit` to an enumerated list consisting of 'ft', 'm'.
 - Changed the description to “The unit of measure for the depth, feet (ft) or meters (m).”
- **Diameter_unit** –
 - Changed from a lookup of `rt_unit` to an enumerated list consisting of 'in', 'ft', 'mm', 'cm'.
 - Changed the description to “The unit of measure for the diameter, inches (in), feet (ft), millimeters (mm), or centimeters (cm).”
- **Material_type_code** – Removed `material_type_code` from the primary key of this section. Verify that for the same location (`sys_loc_code`) with the same start depth and end depth, you cannot have different `segment_types` even if the `material_type_code` is different.
- **Slot_size_unit** –
 - Changed from a lookup of `rt_unit` to an enumerated list consisting of 'in', 'ft', 'mm', 'cm'.
 - Changed the description to “The unit of measure for the slot size, inches (in), feet (ft), millimeters (mm), or centimeters (cm).”
- **Sys_loc_code** – Special characters are not allowed: @ & # % ! = + * < > “ ‘ | \ ? [] { }
- **Thickness** – Changed the field description to “Horizontal thickness of the material used. e.g. Difference between the inner diameter and outer diameter.”
- **Thickness_unit** – Changed from a lookup of `rt_unit` to an enumerated list consisting of 'in', 'mm', 'cm'.

Geology Samples

- **Sys_loc_code** – Special characters are not allowed: @ & # % ! = + * < > “ ‘ | \ ? [] { }
- **Rel_density** – Moved `rel_density` before `density_unit`.
- **Geo_sample_code** – Special characters are not allowed: @ & # % ! = + * < > “ ‘ | \ ? [] { }

Water Level

- **Sys_loc_code** – Special characters are not allowed: @ & # % ! = + * < > “ ‘ | \ ? [] { }
- **Batch_number** – Changed field description to: “Batch identifier for a group of water level measurements.”
- **Depth_unit** –
 - Changed from a lookup on `rt_unit` to an enumerated list consisting of: 'ft', 'm'.
 - Added check: If `water_level_depth`, `water_level_elev`, `corrected_depth`, `corrected_elev`, `measured_depth` of well, `lnapl_depth`, or `dnapl_depth` are populated, then `depth_unit` is required. (and vice-versa)
- **Water_level_elev** – Changed field description to: “Elevation of water level. Must be in feet or meters above the `reference_point` in the same record.”

- **Measured_total_depth_of_well** – Changed field description to: “The actual measured total depth below the reference_point to the bottom of the well. Must be in feet or meters.”
- **LNAPL_depth** - Changed field description to: “Depth to the top surface of the LNAPL below the reference_point. Must be in feet or meters.”
- **DNAPL_depth** – Changed field description to: “Depth to the top surface of the DNAPL below the reference_point. Must be in feet or meters.”
- **Water_level_depth** –
 - Changed field description to: “Must be in feet (ft) or meters (m).”
 - Field is no longer required.
- **Water_level_depth and water_level_elev** – Either water_level_depth or water_level_elev are required.
- **Historical_reference_elev** – Removed historical_reference_elev field.
- **Corrected_depth and corrected_elev:** Updated field descriptions to include "ft" and "m" as the valid depth units.
- **Reference_point** –
 - Added reference_point field and made it required.
 - Maps to dt_water_level.custom_field_1.
 - Added enumeration list: Top of casing, Ground surface, Top of outer protective casing, Top of inner protective casing, and Observation Port.
- **Elev_datum_code** –
 - Added elev_datum_code.
 - Maps to dt_water_level.custom_field_2, with a look up to rt_coord_elev_datum.
- **Task_Code** – Updated the task_code enumeration list:
 - SC = Site Characterization
 - RD = Remedial Design
 - RIFS = Remedial Investigation/Feasibility Study
 - RA = Remedial Action
 - IRA = Interim Remedial Action
 - LTS = Long-Term Stewardship Phase
 - PM = Periodic Monitoring
 - NRS = Non-Routine Sampling

Extraction Injection Wells

- **Sys_loc_code** – Special characters are not allowed: @ & # % ! = + * < > “ ’ | \ ? [] { }

Soil Gas

- **Sys_loc_code** – Special characters are not allowed: @ & # % ! = + * < > “ ’ | \ ? [] { }
- **Depth_unit** –
 - Made field required.
 - Changed the order so depth_unit is after reading_depth.
 - Changed from a lookup on rt_unit to an enumerated list consisting of: 'in', 'ft', 'cm', 'm'.

- Changed field description to “Unit of measure for depth, inches (in), feet (ft), centimeters (cm), or meters (m).”
- **Reading_unit** –
 - Changed the order of the fields so reading_unit is after reading.
 - Made this a required field.
- **Sampling_method** – Made this field required with a look up to rt_sample_method.

Field Results

- **Sampling_company_code** – Changed field description to: “Must be the valid code for the company that conducted the sampling”.
- **Sampling_reason** – Changed field description to: “Reason for conducting the sampling. Example: 2016 Q3 Sampling Event.”
- **Sys_loc_code** – Special characters are not allowed: @ & # % ! = + * < > " ' | \ ? [] { }
- **Sys_sample_code** –
 - Special characters are not allowed: @ & # % ! = + * < > " ' | \ ? [] { }
 - Changed field description to match Sample_v4.sys_sample_code.
- **Start_depth** – Changed field description to match Sample_v4.start_depth.
- **End_depth** – Changed field description to match Sample_v4.end_depth.
- **Depth_unit** –
 - If depth_unit is provided, either start_depth or end_depth should be entered.
 - Changed from a lookup on rt_unit to an enumerated list consisting of: 'in', 'ft'.
 - Changed field description to match Sample_v4.depth_unit.
- **Task_code** –
 - Changed field description to match Sample_v4.task_code.
 - Updated the task_code enumeration list:
 - SC = Site Characterization
 - RD = Remedial Design
 - RIFS = Remedial Investigation/Feasibility Study
 - RA = Remedial Action
 - IRA = Interim Remedial Action
 - LTS = Long-Term Stewardship Phase
 - PM = Periodic Monitoring
 - NRS = Non-Routine Sampling
- **Sampling_matrix_code** –
 - Changed field description to match Sample_v4.sample_matrix_code.
- **Field_parameter** –
 - Filtered rt_analyte list for analyte_type=FIELD, FIELD/LAB or null.
 - Chemical_name is now visible as a column in the drop-down.

DNREC Screening Results (used for screening data only)

- **Sample_matrix_code** – Made required.
- **Sample_date** –
 - Made required.

- Moved sample_date after sample_name and before field_anl_meth_name.
- Added date format to the sample_date field description: “Date and time sample was collected (in MM/DD/YYYY HH:MM format)”.
- **Result_date** – Changed date format in the result_date field description to “Date and time of sample analysis or result (in MM/DD/YYYY HH:MM format).”
- **Cas_rn** – If cas_rn is populated, the chemical_name will be auto-populated from rt_analyte.
- **Depth_unit** –
 - Made this a look up to rt_unit.
 - Added check: If start_depth or end_depth are populated, depth unit is required.
- **Sampling_method** – Made this a lookup to rt_sample_method.
- **Task_code** –
 - Updated description to match Sample_v4.task_code.
 - Updated the task_code enumeration list:
 - SC = Site Characterization
 - RD = Remedial Design
 - RIFS = Remedial Investigation/Feasibility Study
 - RA = Remedial Action
 - IRA = Interim Remedial Action
 - LTS = Long-Term Stewardship Phase
 - PM = Periodic Monitoring
 - NRS = Non-Routine Sampling

Sample

- **Sys_loc_code** –
 - Added check: If sample_type_code = AB, EB, FR, FS, MB, RB, SB, TB then sys_loc_code cannot be populated.
 - Special characters are not allowed: @ & # % ! = + * < > " ' | \ ? [] { }
- **Sys_sample_code** – Special characters are not allowed: @ & # % ! = + * < > " ' | \ ? [] { }
- **Sys_sample_code and parent_sample_code** – Added check: If sys_sample_code and parent_sample_code are populated, then they cannot be the same value.
- **Sys_sample_code and sys_loc_code** – Added check: If sys_sample_code and sys_loc_code are populated, then they cannot be the same value.
- **Parent_sample_code** –
 - Replaced the last sentence of the field description with: “Parent_sample_code records should be listed in the EDD as sys_sample_codes. Additional information may be found in the EDD manual.”
 - Added check: If the rt_sample_type.needs_parent_sample = “N” then the parent_sample_code should be 'null'.
- **Sample_class** – Changed field description to: Enter in the class code for the sample type.
- **Sample_matrix_code** –
 - Added checks:

- If sample_type_code = 'N', then sample_matrix_code cannot have (rt_matrix.matrix_class equal to NULL or LAB).
 - If sample_matrix_code = 'WG' or 'SO', then sample_type_code cannot be TB, EB, FB.
 - If sample_matrix_code = 'AA' or 'AI', then throw an error: SVI data should be entered in the VI_Samples section.
 - If sample_matrix_code = W, then throw a warning “Check Water sample matrix code.”
 - Changed the field description to “Code that distinguishes between different types of sample matrix.”
 - Modified the following check: If sample_matrix_code='SO', 'WS', 'WO', or 'WG' and sample_type_code='N' or 'FD', then start_depth, end_depth and depth_unit are required.
- **Sample_source and sample_type_code** – Added checks:
 - If sample_source = 'FIELD', then sample_type_code should have (rt_sample_type.sample_type_class should equal 'NFQ' or 'FQ' or 'NF').
 - If sample_source = 'LAB', then should have (rt_sample_type.type_class should equal 'LQ').
- **Sampling_technique** –
 - No longer a required field.
 - Added check: If the sample_type_code has rt_sample_type.sample_type_class equal to 'NFQ' or 'NF', then sampling_technique is required.
- **Sampling_company_code** –
 - Added rt_company.company_name column to the drop-down menu.
 - Changed field description to “Name or initials of sampling company”.
- **Task_code** –
 - Added “PM=Periodic Monitoring” to the field description.
 - Updated the task_code enumeration list:
 - SC = Site Characterization
 - RD = Remedial Design
 - RIFS = Remedial Investigation/Feasibility Study
 - RA = Remedial Action
 - IRA = Interim Remedial Action
 - LTS = Long-Term Stewardship Phase
 - PM = Periodic Monitoring
 - NRS = Non-Routine Sampling
- **Sample_delivery_group** – Made sample_delivery_group required.
- **Sample_depth** – Added check: If sample_matrix_code='SO' or 'WG' and sample_type_code='N' or 'FD' then start_depth, end_depth and depth_unit are required.
- **Depth_unit** –
 - Changed from a lookup on rt_unit to an enumerated list consisting of: 'ft' and 'in'.
 - Added check: If start_depth or end_depth is populated, depth_unit is required.

- Changed description to “Unit of measure for the start and end depths, feet (ft) or inches (in).”
- **Custom_field_1** – Changed field description to: Custom Field 1. Not defined yet.
- **Custom_field_2** – Changed field description to: Custom Field 2. Not defined yet.
- **Custom_field_3** – Changed field description to: Custom Field 3. Not defined yet.

Test Result QC

- **Sys_sample_code** – Special characters are not allowed: @ & # % ! = + * < > " ' | \ ? [] { }
- **Fraction** – Changed fraction from lookup to enumerated list: T, D, TCLP, SPLP.
- **Column_number** – Changed description from “Report as null” to “This field must be filled in with NA, 1C, or 2C.”
- **Analyst_name** – Changed field description to: Analyst/Laboratory technician name or initials conducting the analysis.
- **Prep_date** – Added checks: Prep_date cannot come before sample_date or after analysis_date.
- **Leachate_method and leachate_date** – Added check: If fraction = 'TCLP', then leachate_method and leachate_date are required.
- **Final_volume and final_volume_unit** – Added check: If final_volume is populated, then final_volume_unit is required.
- **Lab_matrix_code** – Added check: If lab_matrix_code = 'AA' or 'AI' then throw an error: “SVI data should be entered in the VI_TestResultsQC section.”
- **Method_detection_limit** – Changed from Text (20) to Numeric (20).
- **Quantitation_limit** – Changed from Text (20) to Numeric (20).
- **Detection_limit_unit** – Added check: If detection_limit_unit is populated then reporting_detection_limit, method_detection_limit, or quantitation_limit is required.
- **Reportable_result** – The analytical_method is no longer part of the key fields of this check: Multiple result records with the same cas_rn and reportable_result = “Yes”, are flagged as duplicates.
- **Result_type_code** – Added check: If tic_retention_time is populated, then result_type_code should equal ‘TIC’, and vice-versa.
- **Result_value** –
 - Added check: If detect_flag = 'Y', then result_value is required.
 - Create an error flag if result_value = “0” zero and detect_flag = “Y”.
 - Added check: If result_value is populated, then result_unit is required.
- **Result_unit** –
 - Moved result_unit after result_value.
 - Added check: If result_unit is populated, then result_value is required.
- **Subsample_amount and subsample_amount_unit** – Added check: If subsample_amount is populated, then subsample_amount_unit is required.
- **Tic_retention_time** –
 - Made required when result_type_code = ‘TIC’, and vice-versa.
 - Changed field description to: TIC retention time.
- **Validated_yn** – Added checks:

- If validated_yn = 'Y', then validation_level is required.
- If validation_level is populated, throw an error if validated_yn = 'N'.
- **Detect_flag** – Added checks:
 - If detect_flag = 'Y', and interpreted_qualifiers CONTAINS 'U', then throw a WARNING: “Detectable results should not contain a “U” Interpreted Qualifier, unless reporting Radiation data. For Radiation data, one of the following fields must be populated minimum_detectable_conc, counting_error, uncertainty, critical_value.”
 - If the detect_flag = N and the interpreted_qualifier does not contain a 'U', then an ERROR is thrown: “Non-detect results should contain a 'U' in the Interpreted Qualifier unless it is a flashpoint or coliform result.”
- **Interpreted_qualifiers** – Added checks:
 - If Detect_flag = N, for validated data, if the interpreted_qualifier is populated and the lab_qualifier and the validator_qualifier are NULL, then an ERROR is thrown: “Validator Qualifier or Laboratory Qualifier must be populated.”
 - Edited error popup to say: If the validated_yn='N' and the lab_qualifier is populated, then the interpreted_qualifier must be populated.
- **Validator_qualifiers** – Added checks:
 - If detect_flag = 'Y' and validated_yn=Y, and the interpreted_qualifier is populated, if the validator_qualifier and the laboratory_qualifier are NULL, then an ERROR is thrown: “For validated data where the Interpreted Qualifier is populated, the Validator Qualifier OR the Laboratory Qualifier must be populated.”
 - If the interpreted_qualifier is NULL, and the validator_qualifier and lab_qualifier are NOT NULL, then ERROR: “Validator Qualifier should be NULL if validator is removing the qualifier OR Validator Qualifier should be NULL and Laboratory Qualifier should equal Interpreted Qualifier, OR the Validator Qualifier should be populated into the Interpreted Qualifier.”
 - For unvalidated data, if the validator_qualifier is NOT NULL, then thrown an error: “Validator Qualifier should not be populated for data which is not validated.”
- **Instrument_id** – Updated field description to: Instrument ID
- **Cas_rn and chemical_name** – Filtered rt_analyte list for analyte_type=LAB, FIELD/LAB or null.
- **Result_unit and detection_limit_unit** – Throw an error if the result_unit does NOT match the detection_limit_unit AND a conversion does not exist in RT_UNIT_CONVERSION_FACTOR for the units.
 - Error message: A unit conversion does not exist between the result unit and detection limit unit. If this is a valid unit conversion, submit a reference values request to DNREC.

Batch

- **Sys_sample_code** – Special characters are not allowed: @ & # % ! = + * < > " ' | \ ? [] { }

- **Lab_anl_method_name** – Match field description from TestResultQC_v4.lab_anl_method_name

Vapor Intrusion (New)

- **VI_Bldg_Address** – Added entire new section.
- **VI_Building_Inspection** – Added entire new section.
- **VI_Building_Parameters** – Added entire new section.
- **VI_Outdoor_Locations** – Added entire new section.
- **VI_Locations** – Added entire new section.
- **VI_Samples** – Added entire new section.
- **VI_TestResultsQC** – Added entire new section.
- **VI_Batch** – Added entire new section.