

M0-4: Validations, Check Queries, and Check Reports
Updated 07/07/2010

ftp://ftp-fc.sc.egov.usda.gov/MT/www/soils/guides/Field_Validations_Checklist.pdf

Survey Area:
Date started:
Map units:

MLRA:
Date completed:
Minor components included:

“√” = Okay “SA” = See Attachment “X” = Failed “NR” = Not Run or Checked

National NASIS Validations	Table	Passed	Comments
Check for NULL Component Name	*Component		
Component Geomorphology	*Component		
Component Month	*Component		
Component Parent Material	*Component		
Component Range and Understory Production Percentages	*Component		
Component Restriction	*Component		
Component Surface Frags	*Component		
Component Table - not miscellaneous areas	*Component		Checks for nulls in the component table
Component Taxonomic Classes	*Component		
**FOTG RULSE2 Required Data, part 1	*Component		
Horizon Depth	*Component		
Horizon Structure	*Component		Only checks surface horizon.
Horizon Table (chemical)	*Component		Checks for null chemical horizon fields
Super 7 Validation	*Component		Reviews CF, sand, silt, clay, OM, BD & Ksat
**WEPS Required Data	*Component		
AASHTO Class	Horizon AASHTO		
FOTG RULSE2 Required Data, part 2	Horizon		
Ksat Population	Horizon		
Particle Size Distribution	Horizon		
Percent Passing Sieves	Horizon		
Sand Fraction Validation	Horizon		
Silt Fraction Validation	Horizon		Recommend NOT running this validation
Texture Class vs particle-size separates	Horizon		
Texture Modifier (by fragment volume)	Horizon		
Texture RV Indicator	Horizon		
Unified & AASHTO RV Indicator	Horizon		
Multiple Textures	Horizon Text Grp		
Unified Class	Horizon Unified		

**For FOTG and WEPS validations– can use query Area/Legend/DMU, MU&Major Status, excl. O,Cr,R,M,misc areas to screen out invalid errors

Check Query (M0-4)*	Passed	Comments
CHECK: Component - 1st, Major Component Flag NULL		Run 1 st before running other “CHECK” queries
CHECK: Component - Capability class = NULL		Will pass NASIS validations with missing data
CHECK: Component - Corrosion Concrete = NULL		Will pass NASIS validations with missing data
CHECK: Component - Corrosion Uncoated Steel = NULL		Will pass NASIS validations with missing data
CHECK: Component - Ecosite & Other Vegetation = NULL		Will pass NASIS validations with missing data
CHECK: Component - Elevation, MAP, MAAT or FFD = NULL		Will pass NASIS validations with missing data
CHECK: Component - Flood Duration = Null		Months with occas, freq or vfreq flooding
CHECK: Component - Frost Action = NULL		Will pass NASIS validations with missing data
CHECK: Component - Geomorphic Data = NULL		Searches for missing data
CHECK: Component - Hydric is NULL		Will pass NASIS validations with missing data
CHECK: Component - Hydric="yes" & Landform RV="no" or Null		Will pass NASIS validations with missing data
CHECK: Component - Hydric="yes" and Hydric Criteria is NULL		Will pass NASIS validations with missing data
CHECK: Component - Keys to Taxonomy = NULL		Will pass NASIS validations with missing data
CHECK: Component - Kind = NULL		Searches for missing data
CHECK: Component - Landform RV not yes		Searches for components where no RV="yes"
CHECK: Component - Major component with <15% comp		Checks consistency of major component desig.
CHECK: Component - Minor component with >15% comp		Checks consistency of major component desig.
CHECK: Component - Moisture class = Moisture Subclass		Loads inconsistent data.
CHECK: Component - Moisture Class = NULL or missing		Will pass NASIS validations with missing data
CHECK: Component - Moisture Subclass = NULL or missing		Will pass NASIS validations with missing data
CHECK: Component - Month Validation		Will pass NASIS validations with missing data

11/5/2010

Check Query (MO-4)*, continued	Passed	Comments
CHECK: Component - Parent Material = NULL		Searches for missing data
CHECK: Component - Parent Material RV not yes		Searches for components that don't have an RV
CHECK: Component - Ponding Depth = Null		Months with rare, occas, or freq. ponding
CHECK: Component - Ponding Duration = Null		Months with occas, or freq. ponding
CHECK: Component - Range Production = NULL		Will pass NASIS validations with missing data
CHECK: Component - REAP = NULL		Checks for NULL REAP
CHECK: Component - Restriction depth not equal to Cr depth		Comp. restrict depth should match horizon depth
CHECK: Component - Restriction depth not equal to R depth		Comp. restrict depth should match horizon depth
CHECK: Component - Restriction hardness NULL by restr kind		Searches for missing data
CHECK: Component - Restriction NULL by horizon desig		Searches for missing data
CHECK: Component - Restriction table missing for R, Cr		Searches for missing data
CHECK: Component - Slope shape NULL by component		Searches for missing data
CHECK: Component - Surface frags null to local phase x-check		Searches for missing data
CHECK: Component - Surface frags to local phase x-check		Cross-checks surface frag cover to phase name
CHECK: Component - Surface frags with NULL rv size		Searches for missing data
CHECK: Component - Surface frags less than 250 mm		Generally only use surf frags<250mm if rubbly
CHECK: Component - Surface frags size to local phase x-check		Cross-checks surface frags size to phase name
CHECK: Component - Taxonomic Temp. Regime = NULL		Will pass NASIS validations with missing data
CHECK: Horizon - AASHTO RV not assigned.		Will pass NASIS validations with missing data
CHECK: Horizon - AWC = NULL		Will pass NASIS validations with missing data
CHECK: Horizon - Bottom Depth RV or Top Depth RV = NULL		Missing depths will cause exports to fail
CHECK: Horizon - Chem. CaCO3 < 2 and pH > 7.8		Check consistency of CaCO ₃ vs pH
CHECK: Horizon - Chem. CaCO3 = 0 and horizon suffix ="k"		Check consistency of horizon suffix designation
CHECK: Horizon - Chem. CaCO3 > 3.0 and pH < 7.5		Check consistency of CaCO ₃ vs pH
CHECK: Horizon - Chem. CaCO3 equivalent = NULL		Searches for missing data
CHECK: Horizon - Chem. CEC7 and ECEC = NULL		Searches for missing data
CHECK: Horizon - Chem. CEC7 is NULL and pH is >5.5		Populate CEC7 for pH >5.5
CHECK: Horizon - Chem. CEC7 or ECEC = 0		Searches for a 0 entry, which is not allowed
CHECK: Horizon - Chem. EC = NULL		Will pass NASIS validations with missing data
CHECK: Horizon - Chem. ECEC is NULL and ph <5.5		Populate ECEC for pH <5.5
CHECK: Horizon - Chem. Gypsum = NULL		Will pass NASIS validations with missing data
CHECK: Horizon - Chem. OM = NULL		Searches for missing data
CHECK: Horizon - Chem. pH = NULL		Searches for missing data
CHECK: Horizon - Chem. pH range > 1.5		Searches for wide ranges in pH
CHECK: Horizon - Chem. SAR = 0 and horizon suffix ="n"		Check consistency of horizon suffix designation
CHECK: Horizon - Chem. SAR = 0 and pH > 8.6		Check consistency of SAR vs pH
CHECK: Horizon - Chem. SAR = NULL		Will pass NASIS validations with missing data
CHECK: Horizon - Chem. SAR > 12 and pH < 8.4		Check consistency of SAR vs pH
CHECK: Horizon - Clay = NULL		Searches for missing data
CHECK: Horizon - Clay Low = 0		Avoid populating low clay = 0
CHECK: Horizon - Fragment hardness = NULL		Will pass NASIS validations with missing data
CHECK: Horizon - Fragment high-low > 25%		Finds horizon fragments that range > 25%
CHECK: Horizon - Fragment shape = NULL		Will pass NASIS validations with missing data
CHECK: Horizon - Fragment size = NULL		Searches for missing data
CHECK: Horizon - Fragment size overlap of ST & BY		Loads fragments with sizes that overlap to edit
CHECK: Horizon - Fragment vol. RV not consistent w/ total		RVs need to match if using sieve calculator
CHECK: Horizon - Horizon RV thickness does not match depths		For surveys that populate thickness
CHECK: Horizon - LL, PI, or LEP = NULL		Will pass NASIS validations with missing data
CHECK: Horizon - NULL 0.33 bar or 15 bar H2O		Searches for missing data
CHECK: Horizon - NULL 0.33 Db RV		Searches for missing data
CHECK: Horizon - NULL Kw or Kf		Searches for missing data
CHECK: Horizon - Satiated H2O RV = NULL		Run Water Content Calc for NULL fields
CHECK: Horizon - Sieve #4, #10, #40, or #200 is NULL		Checks for null sieve passing data
CHECK: Horizon - Sieve passings with ranges > 35		Finds sieve passings with range more than 35
CHECK: Horizon - Structure exists in C horizons		Validate that structure in C horizon is intended
CHECK: Horizon - Structure does not exist		Will pass NASIS validations with missing data
CHECK: Horizon - Surface horizon with more than one texture		Surface horizon should only have one texture
CHECK: Horizon - Texture Modifier with Empty Rows		Searches for empty rows
CHECK: Horizon - Texture Rows Missing		Searches for missing rows
CHECK: Horizon - Texture with Empty Rows		Searches for empty rows
CHECK: Horizon - Unified RV not assigned		Will pass NASIS validations with missing data

*These queries will load data with NULL values to edit or they load data with potential discrepancies to validate. Each year that newly approved map units are added, run the check queries on all approved map units as new check queries are constantly being added.

*Custom Check Reports– MO4	Passed	Comments
CHECK: COMPONENT - Albedo		Can check for consistency by comp or missing data
CHECK: COMPONENT Capability, Drainage, Flooding (sym sort)		Check capability class, drainage class & flooding
CHECK: COMPONENT - Compare Horizon Depths to Restrict. Depth		Component restriction depth must match DMU actual restriction. Can run to report results of check queries.
CHECK: COMPONENT - Concrete Corrosion, stored vs calc (diff)		Returns stored "Corrosion Potential of Concrete" values that do not match calculated values. Where discrepancies exist, run calc.
CHECK: COMPONENT - FFD,MAP,ELEV & MAAT (component sort)		Check component ranges and/or missing data
CHECK: COMPONENT - FFD,MAP,ELEV & MAAT (symbol sort)		Check component ranges and/or missing data
CHECK: COMPONENT - Frags. on surface (component sort)		Cross check with surface phase name
CHECK: COMPONENT - Frags. on surface (symbol sort)		Cross check with surface phase name
CHECK: COMPONENT - Frost Action, stored vs calc. (diff)		Returns stored "Frost Action Potential" values that do not match calculated values.
CHECK: COMPONENT – Geomorph, Parent Material, Slope Shape		Check for reasonable assignments or missing data
CHECK: COMPONENT - Hydric Validation v5.4		Lists hydric values – stored & calculated
CHECK: COMPONENT - Hydric, stored vs calc (differences) v5.4		Returns stored "Hydric" and/or "Hydric criteria" values that do not match calculated values. This is not NASIS 6.0 Ready yet
CHECK: COMPONENT - Hydrologic Soil Group Difference Check		Returns stored "Hydrologic Soil Group" values that do not match calculated values. Where discrepancies exist, run calc.
CHECK: COMPONENT - Moisture/Temperature Regime		Run on a single component to check moisture subclass & class assignments
CHECK: COMPONENT - Slope Length		Check slope length compared to RV slope
CHECK: COMPONENT - Steel Corrosion, stored vs calc (Diff)		Returns stored "Steel Corrosion" values that do not match calculated values. Where discrepancies exist, run calc.
CHECK: COMPONENT - T Factor, stored vs calculated (DiffTest)		Returns stored "T Factor" values that do not match calculated values. Where discrepancies exist, run calc.
CHECK: COMPONENT - Temperature/Moisture Classes, climate		Check for consistent population of temperature/moisture regime data
CHECK: COMPONENT - TUD: MT_Aggregated ver. 3.0 (main)		Check single component data to OSD. This is not NASIS 6.0 Ready yet
CHECK: COMPONENT - VEG-Ecosite ID and Name		Returns component Ecosites and/or Other Veg.
CHECK: COMPONENT - Water Features (depths - cm)		Check for correct data population
CHECK: COMPONENT - Water Features (depths - ft)		Check for correct data population
CHECK: COMPONENT - WEG/WEI, stored vs calc (difference)		Returns stored "WEG" or "WEI" values that do not match calculated values. Ashy layers should be validated manually.
CHECK: CORRELATION - Composition		Checks if all comps = 100% (only shows errors)
CHECK: CORRELATION - Correlation Errors in Rep DMU		Lists mapunits with incorrect assignment of the Representative Data Mapunit
CHECK: CORRELATION - Correlation Errors in Status		Lists map units with incorrect status
CHECK: CORRELATION - Legend by Name		Use to check for map units that have the same name or have overlapping slopes
CHECK: CORRELATION - Major Flag YES/NO and Map Unit Comp.		Compare major flag designation with component percent and validate map unit name with textures, slope, etc.
CHECK: CORRELATION - MU Name Kind Validation		Checks map unit kind vs name to validate name
CHECK: CORRELATION - MUG: MT ver. 4.6 (uncoded)		Use to check for inconsistencies or missing data.
CHECK: CORRELATION - sort by name (apprsym, muname, addlsym)		Returns Map units and associated "Additional Symbols"
CHECK: CORRELATION - sort by sym (apprsym, muname, addlsym)		Returns Map units and associated "Additional Symbols"
CHECK: CORRELATION - Taxonomic Classification of the Soils		Cross-check to OSD – Use SC database "create report for list of series with FTP option" to compare a list.
CHECK: Export - Areasym, musym, mapunit		ASCII export of map units in a selected set. Intended for comparing NASIS and Spatial map unit symbols. (Not required by field soil scientist)

*Custom Check Reports– MO4, continued	Passed	Comments
CHECK: EXPORT - Capability Class		ASCII export of components in a selected set. Intended for checking capability criteria against capability class in an Excel Pivot Table. (Not required but can be used by field soil scientist)
CHECK: EXPORT - Component		ASCII export of components in a selected set. Intended for creating a list for the SC database data compare. (Not required by field soil scientist)
CHECK: EXPORT - Components & Taxonomic Class		ASCII export of components and taxonomic classification. Intended for NASIS vs SC database comparisons. (Not required, but can be used by field soil scientist)
CHECK: EXPORT - EcoSite, Production, Plants		ASCII export of vegetative info from the selected set
CHECK: EXPORT - FFD,MAP,ELEV,MAAT,Slope		ASCII export of climatic info from the selected set. (Not required by field soil scientist)
CHECK: EXPORT - FFD,MAP,ELEV,MAAT,Slope, Ecosite		ASCII export of vegetative and climatic info from the selected set
CHECK: EXPORT - Horizon Data – multiple versions		ASCII export of horizon data. Intended for analysis in Excel Pivot Tables. (Not required, but can be used by field soil scientist)
CHECK: HORIZON - AASHTO and Unified stored vs calc (all)		Used to determine full range of AASHTO & Unified. Does not work well for O horizons.
CHECK: HORIZON - AASHTO difference check (RV) musym sort		Returns stored "AASHTO" or "Unified" values that do not match calculated values.
CHECK: HORIZON - Chemical Data (component sort)		Use to check chemical properties of horizons
CHECK: HORIZON - Chemical Data with RV text. (symbol sort)		Use to check chemical properties of horizons
CHECK: HORIZON - Chemical Data with RV text.(component sort)		Use to check chemical properties of horizons
CHECK: HORIZON - Comparison of Frags and Modifiers		Compares fragments to modifiers; based on current NSSH criteria 2/12/2008
CHECK: HORIZON - Frags vs. sieves (horizon listed) by musym		Also indicates RV texture with an asterisk.
CHECK: HORIZON - Kf & Kw, stored vs calc. (Difference check)		Returns stored "Kf" or "Kw" values that do not match calculated values. Where discrepancies exist, run calc.
CHECK: HORIZON - LL and PI, stored vs calculated (Diff)		Returns stored "LL" or "PI" values that do not match calculated values.
CHECK: HORIZON- Phys. Properties (inches/hour-Ksat)		Use to check consistency of Kw, Kf, T factor, BD, and/or WEG
CHECK: HORIZON - RV structure and texture (component sort)		Check for reasonable assignment of structure or missing data. Sort by component or musym.
CHECK: HORIZON - RV structure and texture (musym sort)		Check for reasonable assignment of structure or missing data. Sort by component or musym.
CHECK: HORIZON - Texture Mod: Calc vs Stored Diff. Check		Returns stored "Texture Modifier" values that do not match calculated values.
CHECK: HORIZON - Unified difference check (RV) - musym sort		Validate that stored vs calc differences are intended

*Use check reports to ensure that all minimum data fields are reviewed and populated or to print results of issues returned by check queries. Also use to compare data consistency within map units and between map units. Many of the check reports are duplicates with different choices on ways to sort data (i.e. by component or by map unit). "Critical" check reports are those in bold.

General Guide for QC of Data:

- Progressive Posting: Approved map units should pass all recommended validations, check queries and a review of critical check reports. Results returned from check queries must be validated to ensure that the issues identified are OK. There may be some issues identified that will be fixed subsequent to a progressive posting.
- Final Correlation: All map units should pass all recommended validations, check queries and a review of critical check reports. Results returned from check queries must be validated to ensure that the issues identified are OK. Very limited data may fail check queries (i.e. join units where data cannot be fixed or validated).