





Tracking Changing Assessment Units

Cleo L. Baker

Virginia Department of Environmental Quality

June 23, 2023

Overview

- Process and system of record
- AU ID format
- Change types and how they are tracked
- Water size updates/verification process
- Data extraction
- ATTAINS manual vs. batch upload updates

Process and System of Record

The screenshot displays the CEDSWqa web application interface. The top navigation bar includes links for Home, Reports, Help, PRODUCTION, and CLBAKER, along with a Quick Search field and a user profile for CLBAKER. The main content area features a search form with the following fields: Assessment Unit ID (text input), Water Name (text input), Cycle (dropdown menu), Class (dropdown menu), and Status (dropdown menu). The form is flanked by Recall saved search buttons and Reset/Search buttons. The footer contains copyright information for the Virginia Department of Environmental Quality (2013-2023) and unique identifiers for the user interface and API.

- Comprehensive Environmental Data System architecture and style maintained by our Office of Information Services
- AU validations decided on by the water quality assessment team based on ATTAINS standards

Assessment Unit ID Format

- AUs have a defined structure
- Except for a few pre-2002 lake AUs and CBP Segment AUs, the naming format is:
 - **VA** for Virginia
 - the corresponding letter for the DEQ region (**CB***, **N**, **P**, **T**, **V**, **W**, or **S**)
 - a dash/hyphen (-)
 - the pre-NWBD watershed code and waterbody type '**R**'iver, '**L**'ake/reservoir, or '**E**'stuary
 - an underscore (_)
 - the 3-character stream code established per basin by our monitoring team
 - the individual AU number associated with the overall segment: **01 ... 02 ... 03 ... 04** and so on to identify the hydrologic break
 - a letter designation: **A ... B ... C ... D** and so on to uniquely identify the portion of the AU and allow for a split as needed
 - the last two digits are the Assessment Cycle Year the AU is created: **02 ... 08 ... 18 ... 22** and so on
 - A complete AU ID would look like **VAW-N23R_NEW01A00** or **VAP-H36L_BRC01A06** or **VACB-C10E_TNN01C16**

Change Types – Split

- SPLIT: modifies an existing AU to become 2 or more AUs
- **System validation: All AU IDs retain an Active status**
- For example, we had new data associated in a trib that differed from the previously assessed AU
 - VAP-C01E_GWR01B08 – AU created in 2008 cycle to hold assessed waters of the Great Wicomico River comprised of 0.1308 square miles
 - Split in 2022 to create VAP-C01E_BLA01A22 - 0.0451 sq mi
VAP-C01E_BLA01B22 - 0.0162 sq mi
 - Leaving 0.0695 sq mi of the GWR AU to carry forward
- Splits must be done one at a time starting with the “base” AU

Change Types – Join

- JOIN: modifies 1 or more existing AUs to be merged into 1 AU
- System validations: AU IDs being joined are transitioned to the Retired status; the receiving AU ID retains the Active status
- Retired status means the AU ID(s) cannot be reused again
- All existing assessment data and statuses are identical for adjoining waters
- All AUs must have existed in the previous assessment cycle to participate in the Join
 - Example: Vaughans Creek AU ID VAP-C06E_VGH01B10 is joined to VAP-C06E_VGH01A98

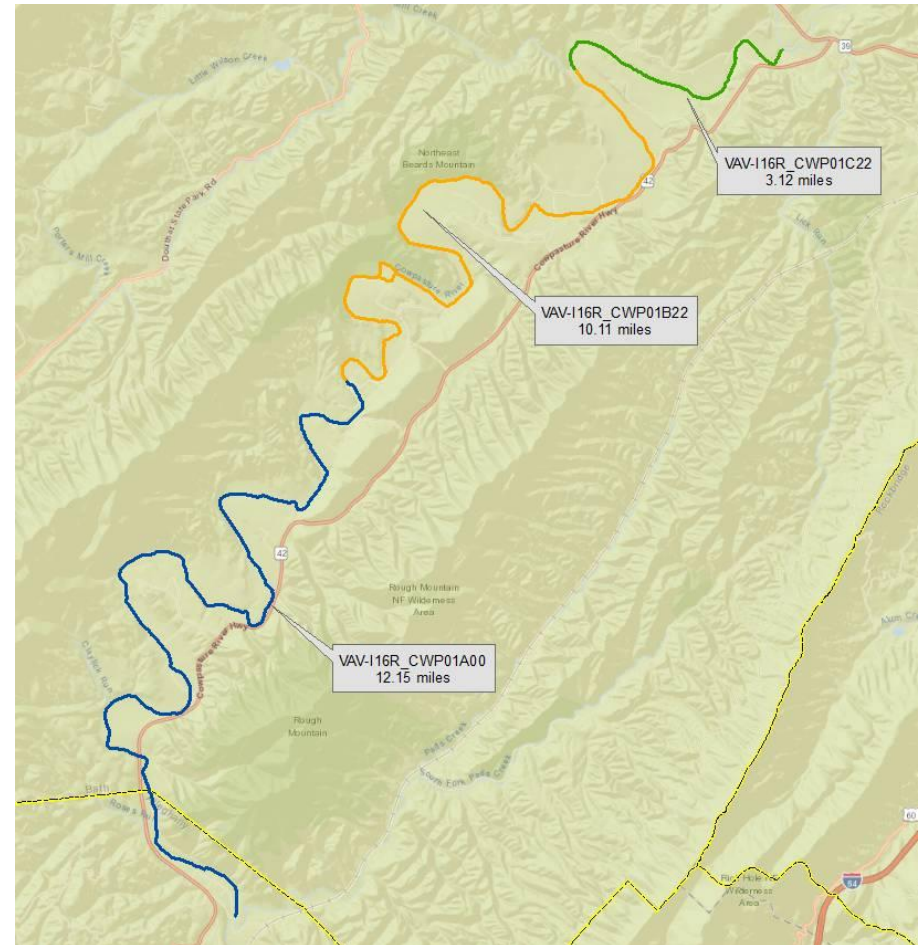
Change Types – Rename

- **RENAME:** alters the AU ID; typically for corrections to stream codes
- **System validations:** Renamed AU ID carries all data forward as Active, the previous AU ID is placed in the Retired status
- **Rename modifications typically do not alter the associated cycle year**
 - **Example:** Woods Creek AU ID VAV-I35R_ **WOS**01A00 is renamed VAV-I35R_ **WDS**01A00 to correct for the stream code assigned in that basin

Water Size Updates/Verifications

- Once the AUs are submitted for approval in CEDS the geometry is validated in a project in ArcGIS Pro
- Any discrepancies are sent back to be addressed by the region, if appropriate

Water Size Updates/Verification – Split



Water Size Updates/Verification – Join



2020



2022

Data Extraction – Pre-ATTAINS Upload

- Each cycle has upwards of 200 AU ID modifications
- QA and backend fixes made where necessary
- QA involves export of a cycle comparison of:
 - matched AU IDs
 - unmatched AU IDs
 - water size comparisons

AU_ID	AU_Status	PreviousAU_ID	AU_Change_Cycle	ModificationType	Notes
-------	-----------	---------------	-----------------	------------------	-------

Cycle	AUStatus	AU_ID	WaterSize	WaterSizeUnit	WaterType	PrevCycle	PrevAU_ID	PrevWaterSize	PrevWaterSizeUnit	PrevWaterType	SizeDIFF
-------	----------	-------	-----------	---------------	-----------	-----------	-----------	---------------	-------------------	---------------	----------

ATTAINS: Batch Upload vs. Manual Updates

- ATTAINS allows users to quickly update AU IDs that have been modified via the Rename process using a batch upload template
- Rename Batch Upload template (must be uploaded as csv)

ASSESSMENT_UNIT_ID	ASSESSMENT_UNIT_NEW_ID	MODIFICATION_TYPE
--------------------	------------------------	-------------------

- Split or Join modifications must be entered manually
- Each step must be done deliberately, there is no undo button
- Split/Join updates can take several days of dedicated work

Questions?

Cleo L. Baker

Water Quality Assessment Data Analyst

Virginia Department of Environmental Quality

(804) 774-9391 / cleo.baker@deq.virginia.gov