Gage Operational Limits

Instructional Webinar

January 13, 2014

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USGS

Purpose

- OFFICE OF SURFACE WATER TECHNICAL MEMORANDUM 2014.03
  - Issued December 20, 2013
  - http://water.usgs.gov/admin/memo/SW/sw14.03.html
- SUBJECT: Adoption and Display of Gage Operational Limits

Background

- In order to safely use and rely on USGS data, user agencies and the general public must be provided information on the physical limitations of some streamgage operations and instruments. In particular, it is important for forecasters and emergency and water managers to know the approximate stage where streamflow and water-level data will no longer be valid or available as a result of the stage sensing system reaching its minimum or maximum operational limit. This information can be provided on stage hydrographs if it is included in ADAPS screening thresholds.

Definition of GOL

- The GOL is the stage at which the stage data can no longer be considered reliable.
  - Appropriate limits might include the elevations of instrument shelves and intakes, pressure transducer ranges, or other physical features or instrument limitations.
  - Only the Water Science Center responsible can accurately determine appropriate GOLs

Requirements of the WSCs

- The values associated with these defined conditions must be entered as the VLO and VHI thresholds in ADAPS associated with the appropriate Data Descriptor for gage height for each streamgage where stage data are collected.
- The following additions or modifications to ADAPS are required no later than March 1, 2014, but should be completed as soon as possible:

NWISWeb Display

- A GOL display system has already been established in NWISWeb and NWIS to include current VLO and VHI thresholds as the minimum and maximum operating limits on NWISWeb hydrographs for internal access only. NWISWeb is configured so that limits are displayed only when data values are close to the GOLs using locked default "include" values of 90 percent for the upper GOL and +0.2 feet for the lower GOL.

WSC Verification of GOLs

- Limits will not be displayed to the public until verified by WSCs. The addition of the character string, (POL), including the parentheses, in the ADAPS threshold remarks field (Label) will signal to the automated process that the threshold has been confirmed by the WSC as a valid operating limit and should be made available for public display.

ADAPS Threshold_Edit

```
        PRIMARY PROCESSING DATA SCREENING AND VERIFICATION INFORMATION
                        Gage height FROM THE DCP (ft)

VHI - Very High Condition (units) *          20.00 LVH - Label: very high condition threshold
HI  - High Condition (units)                 ---   LHI - Label: high condition threshold
LO  - Low Condition (units)                  ---   LLO - Label: low condition threshold
VLO - Very Low Condition (units) *            0.00 LVL - Label: very low condition threshold
SD  - Value To Value Test Difference         ---   LSD - Label: standard difference threshold

BK  - Define zone breakpoints (units)
VI  - VERY RAPID INCREASE (UNITS/MINUTE) *     ---
RI  - RAPID INCREASE (UNITS/MINUTES)           ---
RD  - RAPID DECREASE (UNITS/MINUTES)           ---
VD  - VERY RAPID DECREASE (UNITS/MINUTE) *     ---

 * identifies thresholds that are used to automatically set the erroneous flag (X)
  to incoming preferred input data.


Enter code of field to change, or [CR] to continue:
```

Additional Remarks in Label

- WSCs are strongly encouraged to add a comment in the Label for future reference that describes the situation that creates the operating limit (e.g. float limit-bottom of shelf/floor, transducer limit, lower intake invert, orifice elevation, radar sensor limit, etc.).

VLO Threshold display

- Determine the appropriate "include"; value for the lower GOL and change the default value of +0.2 feet, if necessary, by adding the character string "include_at(xx.x)", without the quotes, in the threshold remarks field. When the recorded gage height reaches xx.x ft, the threshold line will appear on the NWISWeb hydrograph and it will be removed when the gage height rises above xx.x ft.

VHI Threshold display

- Determine the appropriate "include" value for the upper GOL and change the default value of 90 percent in nw_edit, if necessary, by adding the character string "include_at(xx.x)", without the quotes, in the threshold remarks field. When the recorded gage height reaches xx.x ft, the threshold line will appear on the NWISWeb hydrograph and it will be removed when the gage height falls below xx.x ft.

thresh.scan

- WSCs are reminded that the OSW Script "thresh.scan" will provide a list of current threshold settings in ADAPS for NWISWeb publically displayed data descriptors. WSCs can use this script to easily create a list of current settings as they evaluate what revised settings are appropriate and what settings may need further scrutiny.
- See http://water.usgs.gov/usgs/osw/adaps/thresh.scan.html.

Summary

- The completion of this task for all streamgages operated by your WSC where stage data are collected will ensure the public display of GOLs. As a result, we are asking that WSCs assign this task as a **priority during their year-end 2013 hydrologic records review** and make these data available as early as possible in the 2014 water year and no later than March 1, 2014.

Questions????