



## Memorandum

Date: August 26, 2015

To: Scott Boettcher, Chehalis River Basin Flood Authority

Fr: David C. Curtis, Ph.D., WEST Consultants

Re: Flood Warning System Update

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WEST Consultants provides gage network maintenance, website and software coordination, and operational support for the Chehalis River Basin Flood Warning System. The following paragraphs summarize activities over the past year.

### Gage Network

WEST maintains the following gages: Haywire Ridge, Beeville, WF Satsop River at Cougar Smith Rd, Brooklyn, Cedar Creek, Chehalis below Thrash Creek, Newaukum-WEYCO, Riverside, Rock-WEYCO, Skookumchuck,

All gages are checked at the beginning of each week using the Contrail/OneRain website. Periodic communications with OneRain take place via phone or email to make sure alarms and notifications are working correctly and to correct any other communications issues. Gage sensor data is viewed graphically to check for problems

#### October 7th – 9th 2014:

- All sites visited.
- Tip test on rain gages to USGS standards performed, funneling buckets removed and cleaned to manufacture standards, and general inspection of equipment at all sites. End of orifice line checked at stage sites by visual inspection with purge.
- Calibration test performed at all rain gages. All pass.
- Reset rain gage counters for 2015-16 water year.
- All raw data downloaded from sites and backed up in WEST's time series software.

#### January 20th – 22nd 2015:

- All sites visited.
- Tip test on rain gages to USGS standards performed, funnel and tipping buckets removed and cleaned to manufacturer standards, and general inspection of equipment at all sites. End of orifice line checked at stream stage sites by physical inspection.
- All raw data downloaded from sites and backed up in WEST's time series software.

#### July 27th – 29th 2015:

- All sites visited.
- Tip test on rain gages to USGS standards performed, funnel and tipping buckets removed and cleaned to manufacturer standards, and general inspection of equipment at all sites. End of orifice lines checked at stream stage sites by physical inspection.
- Calibration test performed at all rain gages. All pass except for one.
  - Skookumchuck rain gage failed calibration, but is still operational. It will be replaced with spare rain gage (already purchased by Flood Authority) during October 2015 field trip.

### July 27th – 29th 2015: (continued)

- Gaging station levels run at West Fork Satsop River and Chehalis River below Thrash Creek.
- All raw data downloaded from sites and backed up in WEST's time series software.

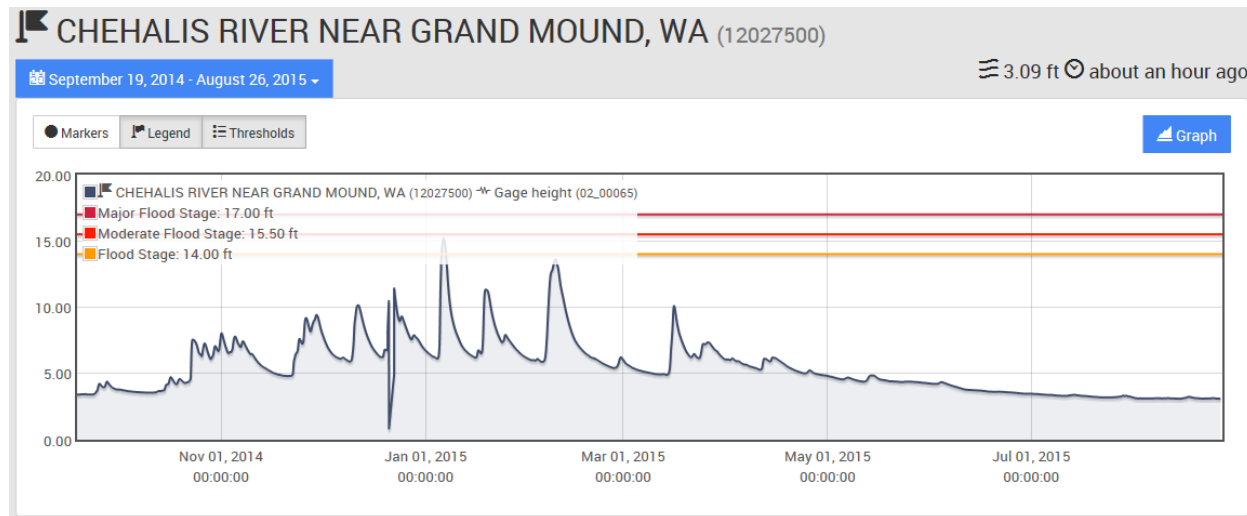
### October 2015 (tentatively scheduled for the first week of October):

- All sites will be visited and inspected. A tip test to USGS standards will be performed, funnels and tipping buckets will be removed and cleaned to manufacturer standards and end of orifice lines physical inspected, if low water permits.
- Calibration test will be performed at all sites if weather is dry.
- Skookumchuck rain gage will be replaced with spare. Original will be returned to manufacturer for repair.
- All raw data will be downloaded from sites and backed up in WEST's time series software.
- Rain gage counters will be reset for 2016 WY.

### Flood Warning System Website

The Contrail software used for the CRBFA Flood Warning System website received a major upgrade with improved map and graphing functionality. The update includes the ability to display NWS radar imagery as well. The user interface underwent some minor modifications. It would be a good idea to familiarize yourself with the changes before the wet season starts. (Free training webinars are available from OneRain, <https://www.onerain.com/contrail-online-training-series>.)

Overall the 2014-15 wet season was fairly mild in terms of flooding. As noted in the graph below, the Chehalis River experienced several small rises during the winter but only reached flood stage once (early January) at Grand Mound.



### Flood Inundation Mapping

For the past two years, WEST and the NWS Seattle office (Brent Bower) have been collaborating on a pilot project to get one of the flood inundation maps from the Chehalis River introduced into the NWS Automated Hydrologic Prediction System (AHPS). After multiple rounds of edits to the inundation maps and a variety of technical delays, the inundation maps for the Chehalis River at Centralia are undergoing Beta testing on NWS AHPS. Stakeholders can login to the <http://staging.enable-us.com/ahps2/inundation/index.php?gage=cenw1> site using the following information: User name: **FIM**, Password: **review2014**. The Beta testing will continue through mid-September. Barring any unforeseen problems, the site is expected to be available to the public before the start of the wet season. If you have any comments, good or bad, send them to Brent Bower, NWS Seattle, [brent.bower@noaa.gov](mailto:brent.bower@noaa.gov).

The NWS helped enable the process by waiving the usual registration fee to post inundation maps. WEST contributed the map edits and coordination required by the NWS to meet their website requirements. When finally posted, the Centralia inundation maps will be the first maps on the west coast posted on NWS AHPS and only the second such set of maps in the western US.