

MEMORANDUM

Date: November 29, 2010

To: File

From: Patrick Brzozowski, P.E.

Re: BBASC WAM Sub-committee Meeting Notes from 112310

A Colorado-Lavaca Bay and Basin WAM Sub-committee meeting was held at the City of Austin's Training and Research Center in Austin, TX on November 29, 2010. Committee members present were: Patrick Brzozowski, Myron Hess, Teresa Lutes, Caroline Runge and Suzanne Zarling. Members not in attendance were Clarence Schomburg and Steve Box. Also present were: Kirk Kennedy, Ruben Solis, Yujuin Yang, David Buzan, Kathy Alexander, Nolan Raphelt, Karen Bondy, Bryan Cook, Doug Anders, Jeff Fox, John Botros, David Bradsby, Mark Wentzel.

Patrick Brzozowski opened the meeting at 9:10 a.m. and reviewed the meeting goals with the sub-committee.

- Receive report by BBEST on initial WAM runs
- Determine a path forward for the Colorado Basin WAM
- Discuss the use or non-use of attainment frequencies in TCEQ's rule making process.

BBEST member, Kirk Kennedy, presented the group with a copy of initial WAM runs he produced using the four (4) data points previously defined. These included: San Saba River @ Colorado River, Colorado River @ Columbus, Tres Palacios River @ Midfield, Lavaca River @ Edna. As agreed upon, the current TCEQ WAM's were used. The runs produced were examples for demonstration purposes to acquaint the sub-committee on how the WAM runs would correlate with the HEFR model being used by the BBEST.

An output format was developed by the BBEST to facilitate understanding of the results. The output was divided into subsistence flow, low, medium and high base flows and pulse flow requirements. These were then arranged by season (winter, spring, summer and fall). Output from HEFR was used for the basis of observed flow and associated flow frequencies (the recommended frequencies shown were for demonstration purposes only and do not reflect the final BBEST recommendations). WAM runs 3 and 8 were produced for each data point. Attainment frequencies were listed by season and flow condition. These were color coded to indicate those flow conditions that fell below the recommended frequency.

The group discussed the output, mainly focusing on the Colorado and San Saba data points. There was considerable discussion on the period of record used in the HEFR runs versus the dates used in the WAM for the Colorado data point. Because of the

complexities surrounding the damming of the Colorado River and the historical releases made to satisfy downstream rights, the BBEST found that the period of record chosen best satisfied the criteria developed by BBEST.

There was also considerable discussion among the group on the method(s) used to compute and record pulse flows. Some of the questions raised included:

- What is the biological significance of pulse flows?
- What is a pulse? (HEFR definition, BBEST definition, TCEQ definition)
- How do you count pulses? Does one large pulse satisfy smaller pulses?
- When do you count pulses?
- Is there going to be a requirement for pulses to be manufactured?

Ruben Solis offered this explanation for defining pulses: It has to be a naturally occurring event and the criteria have to be consistent. To be a pulse, the event has to meet three conditions including trigger level, duration and flow volume. After additional discussion, Kirk Kennedy will work with the BBEST and others to determine the approach and method to be used in determining pulse flows and how to report the results generated using WAM runs 3 and 8.

Kirk Kennedy will attend the upcoming BBASC meeting to give an overview of the WAM runs to the entire stakeholder group.

The group discussed the incorporation of attainment frequencies in the rules. Kathy Alexander described the approach taken by the TCEQ regarding the treatment of attainment frequencies in the rules making process. As of this time, TCEQ staff has not incorporated attainment frequencies into the rules as a permit condition. The group then began to discuss translation/transition of flow regimes and attainment frequencies to implementation triggers that could be part of the permitting process. TCEQ is looking for guidelines that are unambiguous, clear and enforceable to put into the rules.

Kathy Alexander will attend the upcoming BBASC meeting to discuss this with the entire stakeholder group.

The group once again discussed the planned use of the Lavaca WAM by the BBEST. Kirk Kennedy suggested that Brzozowski provide input on the Lavaca WAM as needed by BBEST regarding LNRA's water rights on the Lavaca River.

A question arose as to the treatment (reporting) of the initial WAM runs completed by BBEST in its final report. This should be a discussion item for the BBASC.

The sub-committee made some headway on its determination of recommending which WAM should be used for the Colorado Basin. There has been considerable discussion as to the merits and faults of the current variations of the WAM's in use by TCEQ, Region K and others. To be consistent with the initial WAM runs planned for the Lavaca Basin and the Lavaca-Colorado Coastal Basin, the group reached consensus to use TCEQ's

updated WAM (cutoff model) if Kirk Kennedy is able to configure the WAM. If not, The WAM developed for the Region K Regional Water Planning Process will be used. In either case, run 3 and run 8 output information will be reviewed by the sub-committee before making a final decision. This will be done by January.

The group discussed development of a map showing the locations of the initial data points. Kathy Alexander volunteered to produce a map with coverage of the Lavaca, Lavaca-Colorado and Colorado basins.

The meeting was adjourned at 12:10 p.m.

Issues:

Daily flow compliance approach (subsistence flow, base flow, (< 2) pulse flow)

Hydraulic conditions compliance approach (subsistence flow, (< 3) base flow, (< 3) pulse flow (per season))

Definition of triggers to meet hydraulic conditions (implementation triggers)

Recommendation for which WAM to use for the Colorado Basin

SAC guidance on treatment of attainment frequencies

TCEQ's treatment of attainment frequencies in the permitting process - B&E inflow versus in-stream flows