

Comments from Bill Walker on **Draft 50 ppb TP achievement methodology**
6/13/05

1. The document is improved over previous versions. Suggestions regarding the derivation (elimination of de-trending, separation of ENRP & STA1W periods), leading to a 68 ppb limit for a 50 ppb long-term FWM, have been incorporated. The calibration period using STA data is still relatively short with low-to-average rainfall. I suspect that the computed limit would increase (? back to 76 ppb ?) if a wet year or two were added to the calibration dataset. So, the recalibrated test may be conservative (i.e. more stringent). Variability may also be greater in the lower concentration ranges, so rescaling down from 50 ppb may also be conservative.

2. The big question is - why 50 ppb now? See frequent use of the word "initial" in the title and opening paragraph. So, there is evidently a plan to ratchet down, but no process or timetable is given. Model simulations indicate that a plain vanilla STA1E would produce a LTFWM of ~50 ppb after startup/stabilization without optimization (emergent vegetation only). With the optimization measures prescribed under the Longterm Plan, the expected LTFWM in the range of 15-20 ppb for STA1E, as well as the other STAs, assuming operation at their design flows and loads. At least some of the optimization measures have already been implemented in STA1E (SAV in certain cells), so the expected LTFWM is well below 50 ppb after startup/stabilization. Aside from the expected startup/stabilization period, there is considerable uncertainty in the initial trajectory of STA1E, given the excess flows to be treated in STA1W/STA1E and other factors. It is not clear whether or how this uncertainty can be factored into the initial discharge permit while also considering the benefits of getting the facility running ASAP.

3. Regarding the last sentence at the end of the first paragraph: "Through this process, the TBEL will be revised as appropriate until such time as the TBEL can achieve compliance with the 10 ppb P criterion." Some might interpret that to mean that the discharge permit limit will be LTFWM of 10 ppb (or 13.6 ppb on an annual basis rescaling the 50/68 ppb values). However, the BAPRT portion of the P rule allows for best efforts as a surrogate for achieving the criterion as long as discharge is occurring to a previously impacted area. I assume that FDEP still means that "compliance with the 10 ppb criterion" will be measured in the downstream marsh networks, not at the discharge point, so the ultimate discharge concentrations could be higher. Those networks have yet to be defined for the Refuge.

4. What is the specific plan and schedule for TBELing the other STAs?

5. Another concern (with P Rule language etc) is that TBELs will be interpreted to mean the expected performance of a particular STA with a defined size, design, inflow load, and historical performance. A true technology-based limit would not be constrained by the size or historical performance of the facility. In that case, an overloaded or otherwise ailing STA could self-perpetuate by generating its own inflated TBEL limits at each 5-year cycle. A true technology-based limit would reflect the lowest concentration with a proven track record of predictable performance for STAs operating in their design ranges.

Based upon performance of other STAs (esp STA-2, STA6, STA1W before full scale), that would be 20-25 ppb or lower. Although N=3 is not a huge regional database, other data support that range, and Long-Term Plan forecasts are 15-20 ppb.

6. Why is the 1979-1988 base period used for exclusion of years and bypass events (P. 7, Items 4-5)? While that is relevant for the Phase 1 (50 ppb) STAs under the Settlement Agreement & ECP, the 1965-1995 (soon to be 1965-2000) period is currently the design basis for optimization and expansion of the STAs under the Longterm Plan. This is not a Consent Decree document (or is it?) so should not be constrained by the 1979-1988 period.

7. Page 7, Item 4. The maximum yearly rainfall amounts could be listed and reflect the 1965-1995 period. Spatially averaged rainfall would be more defensible than single-station values, but might be explicitly defined later.

8. There is no mention of requirement to operate the facility within its design ranges (inflow volume, inflow load, water depths).

9. This document is for individual STA discharge permits but is not an adequate surrogate or replacement for the TOC's 80/85% load reduction test, aka Walker methodology. While the recalibrated concentration variability term is relevant, the document does not contain an explicit test for loads or flows in the expected ranges (i.e. 15-20% of the 1979-1988 historical loads to the Refuge & EPA, respectively). TOC previously decided that the lack of a cap on flows or loads was the major problem that needed to be addressed.

10. To some extent, the document goes in the opposite direction by defining extreme events based upon flow (P 7, Item 5). This would allow exclusion of a bypass event from compliance determination, even if it were triggered by under-design or diversion of new basins instead of by climate . Exclusions based upon rainfall are justified. Suggest adding qualifier language that exclusion based upon flow is justified only if it can be demonstrated that the event was triggered by climate and not by flows from basins that were not in the original design equation (i.e. that the overall distributions of flows and loads into the facility have been consistent with the design assumption – getting back to item 8 above).

12. Suggest that rainfall/runoff relationships could be linked with the concentration-based limit in this document to update the TOC's load reduction test.