Upper Neuse Site Evaluation Tool (SET) Task Group
April 6, 2004 Meeting Summary

Prepared April 12, 2004

The third meeting of the Upper Neuse Site Evaluation Tool (SET) Task Group took place at the Triangle J Council of Governments office on Tuesday, April 6, 2004. The objectives of the meeting were to:

- Review BMP removal efficiency guidance;
- Decide on recommendations about Upper Neuse SET hydrology functions; and
- Discuss Tetra Tech memo regarding linking Upper Neuse Plan nutrient targets to the SET.

Meeting attendees are listed below.

Name
John Cox
Mike Coughlin
Laura Lombardo
Kevin Lindley
Betsy Pearce
Kimberly Brewer
Scott Job
Rich Gannon
Chris Dreps

Meeting Agenda

- BMP Removal Efficiency Guidance
- Upper Neuse SET Hydrology Functions
  - Reminder of Task Group's guidance last meeting regarding Upper Neuse SET Hydrology functions and target to track
  - Review of Tetra Tech memo, Hydrologic Measures and Methods for the Upper Neuse SET
  - Discussion and final recommendation
- Linking Upper Neuse Plan Targets to the SET
  - Review of Tetra Tech Memo, Translation of SET Loading Estimates
  - Questions and discussion
- Next Steps

Chris Dreps started the meeting by asking the group whether everyone would agree to use the UNRBA website (www.unrba.org) as a central location for sharing project information such as meeting minutes, meeting agendas, technical memos, or other important documents. The group agreed to post & review SET information through website.

Intros

Kevin Lindley is the newest member of the group, replacing Perry Sugg in Orange County. Laura Lombardo also attended the SET meeting for the first time. She works for NC State University's Water Quality Group and will be spearheading a statewide effort to develop a low-

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impact development design manual and pilot projects. She is currently managing a LID project at a Habitat for Humanity housing development project in Raleigh.

BMP Removal Efficiency Guidance (continued from meeting 2)

Kimberly Brewer proposed an approach to settle dry detention and permeable pavement issues. She proposes that Tetra Tech, UNRBA and NCDWQ come up with agreements on dry detention and permeable pavement removal efficiency assumptions.

John Cox--key is that there is a range of types of dry detention. Thinks there should be credit for some types.

Rich Gannon--DWQ is willing to consider dry detention but now not willing to give it credit for N & P. They haven't talked about TSS, but would be willing to consider this now.

Kimberly Brewer—The dry detention BMP is going to be used in series, to help meet peak flow control requirements

John Cox--Durham is requiring dry detention on every SW outlet to manage flow ("peak matching")

Kimberly Brewer--In SET, dry detention will be given hydrology credit, even if it does not receive a treatment credit.

Rich Gannon--Need more state specific data on dry detention. Rich expressed DWQ's uneasiness about the N and P efficiencies that dry detention and swales are credited with.

Mike Coughlin--Says there's no question dry detention removes some TSS. Thinks there should be nutrient credit, even if the # is low end.

Kimberly Brewer--It is important to convey to Bradley Bennett that the menu of options and assumptions that we make are the incentives we'll be providing to developers to select certain BMPs over others.

Rich Gannon--Dry detention not given N removal credits in Neuse Rules.

John Cox--Better to give credit based on low end of data than to give no credit.

Scott Job--Could differentiate between extended dry detention & park flow dry detention. Give removal credit to extended dry detention.

Rich Gannon--Bradley B. not read to do this yet for the reasons given above.

John Cox--Research has shown extended dry detention removal efficiencies dependent on amount of volume entering basin. Low volume = low efficiencies. High volume, dirty water = higher removal efficiencies.

Kimberly Brewer--explained that we need to move forward on our modeling assumptions in about 1 month, so is it possible to get BB to discuss this?

Laura Lombardo--Dan line has done some monitoring on dry detention.

Tetra Tech will contact Dan Line & then communicate with RG.

Permeable Pavement (PP)

Kimberly Brewer--Mark Senior requested addition of permeable pavement to BMP list.

Mike Coughlin has seen installations in Falls Lake area, understands BB's concern, however he has seen a permeable pavement BMP in Wake County, which is still performing well after 10 years.

Kimberly Brewer--Steve Zoufaly's concern – PP simply doesn't perform like built upon land.

Mike Coughlin--Says include in menu and come back to it when we have data & can update efficiency assumptions. Mentioned Bill Hunt has a few sites being monitored (Birklands subdivision)

Kimberly Brewer--Bill Hunt trying to get PP into NC best management practices manual.

John Cox--Durham's draft Unified Development Ordinance trying to include it for overflow parking.

Kimberly Brewer--do we include this in the menu? Treat as user-defined BMP?

Scott Job--Another alternative – Treat it as a surface and give it a high curve number.

John Cox --treat it as a detention device? With several inches of underlying gravel, it provides at least some detention storage.

Mike Coughlin --treat it as a BMP.

Kimberly Brewer--question to RG, BB, and BH: Can we treat PP as a best management practice?

Rich Gannon--can take this back to Bill Hunt & Bradley Bennett & pursue this.

John Cox--Research from Florida (Livingston) may be helpful in this effort. How to account for volume retained.

Other BMP Issue

Rich Gannon noticed "infiltration" in BMP list in earlier meeting handout. What is it?
What is water quality dry swale?
Grass channels?
Where is vegetated filter strip?

Kimberly Brewer--TT is changing this BMP menu (from Mecklenburg County SET) based on the UNRBA Task Group's discussion.

Rich Gannon--state has a concern with the repercussions if we were to overcredit a practice and have to return later to lower an efficiency value.

Chris Dreps--is there anything we can do to have a "safety period" built into the SET process? Possibly a "Pilot-testing Period"

Kimberly Brewer--don't get caught up in the few BMP's where we don't have agreement. We have agreement on most of these issues

Rich Gannon-- instead of having me continue to relay group's issues to Bradley, maybe have a few in this group sit down with Bradley Bennett to present the issues raised here directly in your own words.

Group agreed.

Hydrology

Kimberly Brewer--from last meeting, group agreed:

- Tool to be designed for short term;
- Total annual pre & post 1 year, 24 hour & 2 year, 24 hour;
- Runoff from the 1st inch of rainfall
- (New Phase II requirement) 1st inch of stormwater runoff from project site; and
- Peak Flow

Scott Job walked through Feb 16 memo on hydrologic methods for SET.
Proposed hydrologic methods for the UNRBA SET included
1. Treat the site as a single "drainage area" and produce composite volume and hydrograph reports. These composite results are still useful on a screening level – it is the entire site that is being evaluated, in the end.
2. For estimating storm event runoff volume, continue using the Curve Number Method. This method has wide acceptance in the engineering community and is already implemented in the SET.
3. For peak flow, use Rational Method and the method generating composite hydrographs from HEC-HMS. The Rational Method has wide acceptance in the engineering community and is the best option for estimating a single number for peak flow. It can be implemented in the SET fairly easily. However, it does not provide a hydrograph. The composite hydrograph approach is advantageous since it does not require additional user input.
4. For BMP influence calculations, provide three options. Continue providing Option 1 (user enters BMP extended detention storage) and Option 2 (user enters post BMP peak flow). BMP detention storage would still be compared to runoff volume using the Curve Number approach. In the same vein, the post BMP peak flow entered by the user could be compared to the peak flow from the Rational method and the composite hydrograph method. Both inputs would be optional. In addition, provide Option 3 (effect of capture volume and release rates) for estimating BMP influence on hydrograph. Implementing this feature provides a valuable educational tool – the ability to see quickly how various BMPs influence a hydrograph.

Chris Dreps--Idea of having user manual include a matrix of the major requirements in each of the Upper Neuse jurisdictions.

Kimberly Brewer--Does group agree with the recommended approaches?

Yes the group agreed.

John Cox—In future iterations of the SET, it would be good to show drainage area requirements for BMPs; however, this is not critical for the first model

Memo on Set Loading Estimates to the Upper Neuse Performance Targets
Kimberly Brewer explained how targets in Upper Neuse plan relate to nutrient amount that can leave site.

Key assumption: a lot is attenuated in watershed. A reduction factor of 0.45 for TP and 0.56 for TN is assumed in the SET.

Tetra Tech created a reduction factor. Table 2 in the SET Loading Estimates memo shows these reduction factors.

Chris Dreps--it is important to question these rates and research behind them.

Rich Gannon--Felt the numbers are consistent with those that the state has developed on other projects.

Kimberly Brewer--Explained the Upper Neuse nitrogen and phosphorous performance standards, the in lake targets they are based on, and how these determine the SET on-site targets.

Next Steps
Finalize BMP removal efficiency & capture rate assumptions

Tetra Tech will write a memo recommending methods for determining how the SET cost module should work.

SET Task Group should read cost module memo & respond
(Rich Gannon mentioned David Moreau's WRRI presentation that we should include/require cost estimates as part of Phase II requirements)

Next Meeting
The next task group meeting is scheduled for Wednesday, May 12 at 10 a.m. at the TJCOG offices.