Minutes
Trinity River Bacteria TMDLs
Public Meeting
Dallas ECO Park, Dallas, Texas
January 12, 2010
1:00 – 2:45 pm

Attendee	**Representing (As Stated on Meeting Sign-In Sheet)**
Byron Harris	City of Dallas Office of Environmental Quality
Mary Ayala	City of Dallas Trinity Watershed Management
Keith Kennedy	North Central Texas Council of Governments
Muhammad Rafique	Dallas-Ft. Worth Airport Environmental Affairs Department
Tim Wentrcek	Dallas-Ft. Worth Airport Environmental Affairs Department
Trey Shanks	Freese and Nichols
Peter Blanchette	City of Dallas Stormwater
Pam White	City of Dallas Stormwater
T. Sury	City of Grand Prairie
Joy Osee	City of Grand Prairie
William Madison	City of Dallas Office of Environmental Quality
Emanuel Kasey	City of Dallas
Jennifer Owens	Tarrant Regional Water District
Curtis Franklin	Dougherty Sprague Environmental, Inc.
Susan Alvarez	City of Dallas Stormwater Management
Glenn Harwell	United States Geological Survey
Thomas McGarr	City of Dallas Water
Tracy Michel	North Central Texas Council of Governments
Angela Kilpatrick	Trinity River Authority
Sam Brush	North Central Texas Council of Governments
Elizabeth Turner	City of Dallas—Dallas Water Utilities
Bob Ressl	City of Arlington
Kiran Patel	City of Dallas
Bill Gase	City of Dallas Stormwater
Kevin Harley	City of Dallas Office of Environmental Quality
Mike Bastian	CH2M Hill, Inc.

Support Staff
Dania Grundmann - Texas Commission on Environmental Quality (TCEQ)
Larry Hauck - Texas Institute for Applied Environmental Research (TIAER)
Ron Stein - TCEQ
Russell Kotara- TCEQ

John Mummert - TCEQ
David Pendergrass - TIAER

Administrative Issues

A public meeting on the Trinity River Total Maximum Daily Load (TMDL) project was conducted on Tuesday, January 12, 2010 from 1:00 pm – 2:45 pm at Dallas ECO Park in Dallas, Texas. The meeting was conducted to inform the public about the status of the ongoing Upper Trinity River Bacteria TMDL project. Hard-copies of the PowerPoint presentations were provided along with maps.

Welcome and Introductions

Mrs. Dania Grundmann welcomed everyone. Introductions were made by each attendee. Mrs. Grundmann discussed a change in scope of the project to include only two portions of the Upper Trinity River, assessment units 0805_03 and 0805_04 (AU03 & AU04), which are located mostly within the City of Dallas.

Overview of Changes in Project Watershed

Mrs. Grundmann introduced Dr. Larry Hauck who opened with a description of the scope and purpose of the upcoming presentation. His stated purpose was to provide an overview of the TMDL calculations and the current status of the TMDL project. He said the TMDL gives an allocation but the Implementation plan (I-Plan) allows stakeholders to move forward and put strategies into practice to reduce bacteria loads in the Trinity River. He noted that Dallas was not in Houston's situation where bacteria reductions by as much as 99% were outlined. Dr. Hauck instructed the attendees to refer to the handout which he would follow closely in his presentation. He defined "impaired" as simply "designated uses are not being met." Within the Upper Trinity River, high *Escherichia coli (E. coli)* concentrations and impaired recreation use are at issue. He then defined TMDL and reiterated that within Texas an I-Plan is part of the TMDL and lays out the corrective measures implemented to restore the water body. Dr. Hauck expanded on his definition of TMDLs by describing three primary facets: the Trinity River TMDL is a study, a document, and a document and an I-plan. The Trinity River TMDL is to a degree caught in a transition while TCEQ is revising the standards for recreation use. Dr. Hauck reviewed current vs. proposed criteria for recreation use categories. Presently most Texas water bodies are considered as having primary contact recreation. The current TMDL is based on a geometric mean concentration of 126 MPN/100 ml (most probable number of bacteria colonies per 100 mL), which is the criterion that supports contact recreation use. The City of Dallas has agreed that primary contact recreation use occurs on the Upper Trinity River. Any changes in the bacteria criteria as part of the proposed revisions to the Texas surface water quality standards must be submitted to the EPA. It was stated that EPA will likely approve the proposed changes in criteria for recreation use, because they have been kept well informed during the development of the changes.

Dr. Hauck continued with a map of the Upper Trinity River and pointed out TCEQ water quality monitoring stations along its length. He displayed a summary table of *E. coli* data for all Upper Trinity River AUs covering a seven-year period of record (February 2001 – November 2008). He drew the attendee's attention to the geometric mean column emphasizing that it is the

geometric mean that is used in the TMDL calculations. Except for AU04 and AU03, the Upper Trinity River was in compliance for *E. coli* bacteria.

A question was raised concerning apparent inconsistencies in presented data tables and other information obtained from the TCEQ Upper Trinity River TMDL website. (Mrs. Grundmann and Dr. Hauck met with the questioner after the meeting, and it was determined that there were no inconsistencies but that the two tables in question represented different periods of record and contained different datasets.)

Another questioner asked whether a future TMDL would have to be conducted in the AUs currently considered in compliance in the 2008 TCEQ water quality assessment, but later indicated as not supporting the contact recreation use. Mrs. Grundmann answered that there was no sure way to predict future *E coli* concentrations, but she considered it unlikely that a TMDL would be required in the near future since the 7-year geometric mean for *E. coli* was in compliance demonstrating a track record of compliance.

Dr. Hauck continued with a summary of conclusions from assessment findings. The first time the Upper Trinity River was listed for bacteria impairment was 1996 indicating a persistent bacteria problem. He then displayed a map of the impaired AUs (AU03 and AU04) and drew attention to the assessment stations and AU boundaries. A table was presented showing basic information on the City of Dallas Central Wastewater Treatment Facility, the only National Pollution Discharge Elimination System / Texas Pollution Discharge Elimination System (NPDES/TPDES) permitted facility in the impaired watersheds. This was followed with a table of Municipal Separate Storm Sewer (MS4) entities. A map of land use and land cover was then displayed that demonstrated that land use of the watersheds of the impaired AUs was predominately urban. Lastly, a map of the wastewater and sewered area jurisdictions showed that almost all of the two impaired AUs are within the City of Dallas centralized collection system.

Dr. Hauck moved on to a discussion of the TMDL allocation process which he defined as a process by which responsibility for pollutant loads were distributed among regulated and non-regulated sources. He defined loading as a pollutant concentration times a streamflow value. The TMDL equation and its components were described. Dr. Hauck explained the logic of the load duration curve (LDC) approach saying it enables one to determine broad categories of sources. The LDC method was endorsed several years ago by the Texas bacteria TMDL task force.

The LDC method requires streamflow and *E. coli* data and begins with development of a flow duration curve (FDC). Dr. Hauck worked through an example using *E. coli* data from TCEQ station 10937 and flow data from USGS flow-gage station 08057000. He used a 25-year period of record ending in 2006 to get a range of wet and dry years. He applied a drainage area ratio to the streamflow to account for the difference in watershed size above station 10937 compared to the watershed area above the flow gage. The individual daily streamflow data were then ranked highest to lowest and a percent exceedance was calculated for each streamflow. A plot of the ranked data was displayed as a FDC, and Dr. Hauck explained that the curve represented the percent of time a given flow was exceeded.

Once a FDC was created the second step was to convert the FDC to a LDC by multiplying the flow by the appropriate geometric mean criterion, in this case 126 MPN/100 mL, and a conversion factor to calculate the allowable loading for contact recreation. Dr. Hauck showed a finished LDC. The third step was to add field measured *E. coli* values onto the LDC plot. This enhancement was done by multiplying measured *E. coli* values by the daily streamflow on the bacteria sampling date. He showed the LDC graph with measured *E. coli* loads overlain. Finally, the LDC was further developed by separating the plot into high-, mid-, and low-flow regimes. *E. coli* data measured during wet-weather influenced flows was also distinguished from data collected during base flow, with special symbols distinguishing the two types of data on the plots. Dr. Hauck guided the audience through the interpretive process of the final LDC for station 10937 and showed that the measured *E. coli* data indicating impairment (or exceedance of the allowable loading) were most frequently associated with wet-weather conditions. He stated that this pattern was not unusual.

Ron Stein of TCEQ elaborated on proper interpretation of the predominance of exceedances in measured *E. coli* data under wet-weather conditions. Mr. Stein indicated that these high bacteria loadings could not only be the result of stormwater runoff loadings but also inflow and infiltration (I/I) impacts on the discharge from wastewater treatment plants.

The LDC for station 10934, the other station in the impaired AUs, was presented and it also had increased impairments at high flows.

Dr. Hauck proceeded to address the AU inlets (upstream end) and outlets (downstream end) as the reference points for developing the TMDL allocations. He stated that TCEQ based the TMDL on AU outlets because the sampling stations where *E. coli* samples were collected were not close enough to the outlet for their LDCs to be representative of the allowed loadings within each impaired AU. Dr. Hauck explained that FDCs and LDCs were developed for the inlet and outlet of each impaired AU following the methodology presented previously.

Dr. Hauck reiterated the TMDL equation, now with a future growth (FG) component included. Then he expanded the equation to explain the waste load allocation (WLA) and load allocation (LA) in detail.

Mr. Stein indicated to attendees that the permitted stormwater (SW) part of the load allocation included MS4s, construction stormwater, and industrial stormwater.

Dr. Hauck presented an example TMDL allocation graphic—a LDC—to explain the margin of safety (MOS) and other terms in the TMDL allocation. He went on to show that the pollutant load allocation could be calculated as: TMDL = criterion x flow x conversion factor where the criterion was 126 MPN/100 mL and the flow was the median flow within the high flow regime on the LDC. He followed this with a table of the calculations in the context of upstream and downstream bacteria loads. Two slides on the MOS were then presented to show how it is inserted into the allowable loading for wastewater treatment facilities. Dr. Hauck then described the FG component saying it was based on projected average gallons per capita per day for Dallas wastewater treatment facilities. The allowable loading for permitted storm water was proportioned by the area under MS4 permit. Since 100% of the area within the impaired AUs is

under MS4 jurisdiction, all storm water loading was allocated to permitted sources and the load allocation to non-regulated sources was set to zero. A summary table showing all of the TMDL calculation steps was then presented.

Finally, a graphic was displayed that revealed allocation loads for each impaired AU as a function of the proposed changes in water quality criteria for different categories of recreation use. It was explained that these graphics provide the necessary link to the proposed changes in the Surface Water Quality Standards to allowable loadings, which would obviate the need for developing an entirely new TMDL once the proposed changes are approved.

The last order of business was to provide an update on the status of the TMDL project. Mrs. Grundmann stated it was TCEQ's intention to maintain a viable stakeholder setting. Dr. Hauck relayed target dates for the next steps: preparation of draft TMDL ~ winter 2010, request Commission approval to release TMDL for public comment ~ spring 2010, public comment period and public meeting ~ summer 2010, request TCEQ Commission adoption of TMDLs ~ summer 2010. Mrs. Grundmann commented that the implementation plan (I-Plan) is the most important phase from TCEQ's perspective and the TCEQ is working with the North Central Texas Council of Governments (NCTCOG) on how best to approach I-Plan development. She invited questions and comments. Mr. Ron Stein commented that TCEQ talked with the NCTCOG to let them know what is involved with I-Plan development. Mrs. Grundmann also mentioned that other TMDL projects are coming in the near future including one addressing PCBs.

Final Questions

Q: How confident are we that our TMDL area (area of bacteria impairment) will not grow?
A (Mrs. Grundmann): We can't know for sure, but the fact that the geometric mean covers a 7-year period demonstrates a consistent meeting of standards.
A (Dr. Hauck): The bottom line is there's no guarantee, but the geometric mean computation is fairly robust and won't change fast.

Q: Are wildlife contributing a lot?
A (Mrs. Grundmann and Dr. Hauck): Yes, but they fall into the general loadings in the allocation process.

Q: When is the I-Plan arriving?
A (Mrs. Grundmann): I don't develop it just in my office. It won't be done until all the stakeholders have had opportunity to give input. If there's a lot of enthusiasm, it will be completed more quickly. It will probably take another 1-2 years to get an I-plan completed. The TMDL could become effective before the end of this calendar year.
A (Mr. Stein): The commitment by the stakeholders determines the completion time for the I-Plan.
A (Dr. Hauck): Cities often address problems as they arise, they usually don't wait until the I-plan is implemented to begin efforts to reduce bacteria loadings from the most obvious controllable sources.

Q: What about the responsibility of the upstream neighbors for the bacteria they produce that decreases our load capacity in the impaired portions subject to the TMDL?
A (Mr. Stein): The upstream folk are responsible for meeting the standard and we cannot make them do more than that.
The questioner reiterated his point and added "it will be a hard sell" to the businesses and stakeholders in the impaired portion. Mr. Stein also reiterated his answer.
Dr. Hauck interjected trying to restate the question: "You're trying to say the upstream folks have used up some of our capacity?"
Questioner: Yes.
Mr. Stein: Upstream sources can be brought into the process. There might be training opportunities and cooperation opportunities. Undeniably, however, there are sources WITHIN the TMDL watershed that need to be addressed.

Q: How confident are we that the I-Plan will result in real improvement?
A (Mr. Stein): It's a never-ending plan until the standard is met. We want to see continuing improvement on water quality which will be checked at intervals. There is no way to know how long it will take.

Q: What are typical actions?
A (Mr. Stein): Improved oversight of discharges, managing sewer overflows (which can be challenging financially), and managing stormwater flows (such as low-impact construction with on-site management). Stormwater management efforts are very important. Unfortunately they are diffuse across watersheds. Few watersheds have the money to do broad management changes. This is a multi-faceted problem that requires a multi-faceted solution.

Comment (Mrs. Sue Alvarez): The City of Dallas permit is up for renewal in February 2011. Preliminary discussions are that numeric measures will be included in the permit. I anticipate that the TMDL will influence the permit numbers on water quality. We need to be thinking about how the TMDL will impact the permit application.

Q: Aren't you limited by land availability to mitigate the bacteria?
A (Mr. Stein): That's why this has to be a long-term plan. There's not opportunity to do this in a highly concentrated way.

Q: Are there any opportunities to kill the bacteria in the water?
A (Mr. Stein): Salinity kills bacteria.
A (Dr. Hauck): Sunlight.

Q: Where do we access the raw data for 2008 assessment?
A (Mrs. Grundmann): I can get that to you.

Q: Does the I-Plan also involve coming up with techniques for ongoing monitoring of bacteria.
A (Mr. Stein): The state will continue to monitor, though the plan can consider monitoring strategies also.

Q: How about specifically monitoring BMPs?

A (Dr. Stein): For example, the plan might look at monitoring street sweeping effectiveness; the strategies can be broad

Q: I need more detail in order to develop BMPs.
A (Mr. Stein): Houston is concentrating on the known human sources. But some plans have done more monitoring on their own to determine specific hotspots of *E. coli*.

Q: Are there any programs that demonstrate cause-effect relationships between BMPs and improvements?
A (Mr. Stein): No. Unfortunately the available data is not definitive enough at this time to provide useful guidance

Q: What role do wastewater treatment facilities (WWTFs) have?
A (Mr. Stein): WWTFs are doing a generally good job—especially the big plants like Dallas Central WWTF.

Mr. Stein adjourned the meeting at 2:45 pm.