Meeting Summary
Buffalo & White Oak Bayous Bacteria TMDL Stakeholder Group

January 28, 2004

STAKEHOLDERS PRESENT: Latrice Babin; Neil Bishop; Del Cannon; Claire Caudill; Catherine Elliott; Theo Glanton; Terry Hershey; Scott Jones; Gwang Kyo Po; Helen Lane; Trent Martin; Todd Running; Linda Shead; Mary Ellen Whitworth;

STAKEHOLDERS ABSENT: Rod Hainey; Colleen O'Brien; Mike O'Brien; Kim Phillips; Kerry Whelan.

SUPPORT TEAM PRESENT: Linda Broach; Paul Jensen; Kim Laird; Carl Masterson; Mary Jane Naquin; Tina Petersen; Hanadi Rifai; Ron Stein; Yu-Chun Su; Monica Suarez.

OTHERS PRESENT: Sharon Crabb (TC&B); Alem Gebriel (TC&B); Lynne Johnson (BPA); Paul Nelson (Houston Public Works); Amber Thomas (Harris County Storm Water Quality); Tom Ivy (Citizen); Michael Bloom (PBS&J); Linda Pechacek (TC&B); Charley Schwartz (PBS&J); Chuck Wemple (H-GAC).

WELCOME & INTRODUCTIONS

Mary Jane Naquin opened the meeting at approximately 4:15 PM and self-introductions were made. Ron Stein took this opportunity to announce that TCEQ is creating a ListServ and solicited participation. This ListServ will be used to provide stakeholders and interested parties with the most up to date information on TMDLs. As people introduced themselves, they announced events in which they are involved or thought would be of interest to the group. These included:

- Foto Fest in March-April that will focus on water;
- Backyard, Bayou and Beyond Watershed Symposium, April 7 at the University of St. Thomas;
- The Buffalo Bayou Partnership's trash skimmer is working well and a database is being developed; and
- The Buffalo Bayou Regatta will be held May 1.

REVIEW AGENDA

Members accepted the agenda as proposed.

ADOPTION OF OCTOBER 15, 2003 MEETING SUMMARY

There were no changes to the meeting summary and it was adopted by consensus.

PROJECT BRIEFINGS

Harris County: Trent Martin informed the group that the bacteria source study is on hold, awaiting a contract from TCEQ.

H-GAC Clean Rivers: Todd Running told the group that work has just started on the Quality Assurance Project Plan (QAPP) for the Bacteria die-off study that the Clean Rivers program is conducting with the City of Houston Rankin Road Laboratory. The purpose of this study is to check and update the die-off rates measured in 2001 and used in modeling. The measurements in 2001 may have been affected by insufficient mixing. This study will look at die-off rates at three different mixing rates, zero, low and high, and two temperatures (4 degrees C and room). It will entail the sampling of one site six times within a 6-month period to ensure seasonal variation. Samples will be split into 5 regimes at the lab:

1. Sample held at 4 degrees C for 4 consecutive days monitored for E. coli daily using standard method.

2. Sample held at room temperature for 4 consecutive days monitored for E. Coli daily using standard method.
3. Sample held at room temp for 4 consecutive days monitored for E. coli daily from top of sample container (not shaken)
4. Sample held at room temp for 4 consecutive days - agitated continuously at slow rate - monitored for E. coli daily using standard method
5. Sample held at room temp for 4 consecutive days - agitated continuously at high rate - monitored for E. coli daily using standard method

The study hopes to better characterize bacteria die-off rates are in the Houston area, and what, if any differences, there are in the methods used to hold and analyze bacteria samples. Agitated samples will be used to approximate in-stream conditions where bacteria have relatively little chance to settle out. A group member asked if sediment would be examined in the study and Mr. Running responded it would not.

Project Inventory Task: Carl Masterson briefed the group on a task that was discussed in October and with the help of TCEQ has been funded. This task will identify and record water quality projects that are associated with bacteria. The project area includes the Houston Metropolitan Area and when finished, it will be put on the H-GAC TMDL Web Page. H-GAC staff from Community Resource and Clean Rivers program areas will conduct the inventory. Suggestions were received to do this over the Internet with phone follow-up and will probably go back in time no more than 10 years. Staff has compiled a list of potential sources to contact and Mr. Masterson asked for any suggestions from the group.

TMDL PROJECT STATUS

Tina Petersen, University of Houston, presented a slide show, summarizing the study efforts to date. She began with a recap of the problem – violation of the Texas Surface Water Quality Standards and impairment of the bayous' use for contact recreation and noted that there has been a change in indicator from Fecal Coliform to E. coli. She then presented data on historical water quality that show 97% exceedances of the standard for Buffalo Bayou at Shepherd Drive for the sampling period 1/76-12/01 (1,063 samples). For White Oak Bayou at Heights Blvd., the exceedances were 93% from 2/76-11/01 (350 samples). Ms. Petersen reviewed the potential sources of E. Coli that include:

- Inadequate/Incomplete disinfection from WWTP effluent;
- Unpermitted discharge to storm sewers;
- Bacteria from upstream sources (Buffalo Bayou only);
- Failed septic systems;
- Nonpoint source (NPS) from wildlife in the watershed;
- Urban NPS; and
- Stream sediment.

She discussed sampling of smaller wastewater treatment plants (<1million gallons per day only) and dry weather storm sewer discharges performed in the summer of 2001. Reviewing the data shows the E. coli load from storm sewers (dry weather) is greater than the WWTP load in Buffalo Bayou, while the WWTP load is greater than storm sewer load in White Oak Bayou and overall, the WWTP load is the greater of the two. However, neither the dry weather inflows nor WWTP discharges made up a significant portion of the observed bacteria load in the bayous at low flow.

A question was raised over an apparent shift in the low flow coliform concentrations. The question was raised because there appeared to be a shift in the mean concentration values with respect to the Memorial Park downstream and upstream sample locations. A suggestion was made that the technical team probe the area upstream of Memorial Park to determine the cause of the data shift. The technical team agreed to review the situation.

Ms. Petersen spoke of how load allocations were done and assumptions made. The process was one of an iterative top – down approach starting at the most upstream subwatershed and reduce the concentrations from WWTP, storm sewers, NPS, and the reservoirs in Buffalo Bayou. The assumptions made were that WWTPs discharged at the water quality standard, and at permitted flow. Discharges from storm sewers were assumed at the water quality criterion and discharge from the reservoirs to Buffalo Bayou were assumed to meet both the not-to-exceed and long-term geometric criteria. The nonpoint source loadings included any uncertainty about sediment, biosolids overflows and bypasses. One interesting aspect of the

technical team's modeling work is that when point sources are eliminated, standards can be met in **some** parts of the bayou. When NPS is eliminated, standards can be achieved in **most** parts of the bayous. Removing point source contributions in White Oak Bayou is more noticeable because of the number of small wastewater treatment plant discharges in that bayou. Scott Jones interjected that the technical assistance program for solids management funded by the Galveston Bay Estuary Program operates on requests for help, but that requests are not coming in. However, the project will continue on a smaller scale. The pilot project that led to the technical assistance project did show an improvement in water quality with improved solids management. At this point it was suggested that someone involved with that pilot project be invited to speak to the group on how they got the operators to cooperate and what the results of the study showed. Gordon Pedersen with Gulf Coast Waste Disposal Authority was the suggested contact.

The end result of this presentation was that there are still a lot of issues for the stakeholders to discuss and they are important issues encompassing flows from WWTPs, allocation of reductions of point vs. nonpoint sources, and the assumptions used in the modeling. One of the key issues is that WWTP permits do not have limitations on the amount/number of bacteria discharged but do have requirements for time of disinfection, which has been shown to produce near zero bacteria numbers. The question was if it is appropriate to assume that WWTPs discharge disinfected water at zero concentration of bacteria. The point was raised that the inputs to the model show a small contribution from WWTPs and if that is so, how can the assumption of zero bacteria or bacteria discharged at the standard be valid. Also, the manner of disinfection was raised and experience shows this is a varied activity some use chlorine tablets, small facilities may not replace empty chlorine gas as needed due to the expense. Another assumption questioned by the group is the use of permitted flow, as WWTPs typically do not discharge at the permitted flow. This appears to be a multi-level issue and needs more evaluation.

Regarding the project's next steps Ron Stein noted that TCEQ has completed the first phase of the QAPP review for the next level of investigation and the hope is to have it completed (EPA review) within two months. Among the things the project will be looking at, once the QAPP is approved, are:

- Bacteria content of sediment;
- Sampling for bacteria content in discharge from Barker and Addicks Reservoirs both under high and low flow conditions;
- Sampling downstream of WWTP outfalls;
- Sampling bayous with no WWTP discharges;
- Trying to characterize overflows and bypasses;
- Try to better estimate the contribution of biosolids from WWTPs.

Mr. Stein noted that an important aspect of the next phase is the bacteria source tracking project that will try to identify contributions from 6 or 7 sources using two methods of tracking human vs. non human - dogs, cats birds bats cattle, and horses. This will take place over this and into next Fiscal Year. Also to be addressed is the matter of WWTP operations, knowing that operators can do a good job, but finding ways to ensure they do so even in the absence of an imminent inspection/sampling. Mr. Stein noted that everyone is going to have to do something and much effort over a long time will be needed to get water quality where we all want it to be.

MEMBERSHIP ISSUES

Carl Masterson distributed the current roster showing five vacancies and what categories those who vacated had represented. Back in October, during the brainstorming session, the group identified certain groups to approach for new members. It is a long list from which to fill five spots. Mr. Masterson asked for suggestions based on who is represented around the table. Potential members suggested by the group are Dave Peters, City of Houston Storm Water, Karl Brown, Corps of Engineers (reservoir operation), someone from the Houston Arboretum, Bill Manning Jr., Texas Utilities Operators Association, Houston Parks Department, someone from Aquasource, Association of Water Board Directors, John Ohrt, Houston Canoe Club, Dr. Jim Lester, HARC.

REVISIONS TO THE BACTERIA TMDL STAKEHOLDER GROUNDRULES

The Stakeholders were asked to review the amendments to the Groundrules that were made in light of changes in the work contract between TCEQ and H-GAC. The amendments will be presented for adoption at the next Stakeholder meeting.

NEXT MEETING

No specific date was set, but three to four months was estimated.

ADJOURN

The meeting was adjourned at approximately 6:05 PM.