Approved by Consensus 1/12/06

Meeting Summary
Houston Ship Channel/Upper Galveston Bay TMDL Stakeholder Group

August 31, 2005

STAKEHOLDERS PRESENT: **Scott Aspelin; Chris Barry; Charles Beckman; Winston Denton; Rory Lang; Ed Matuszak; Sara Metzger; Lial Tischler; Jack Wahlstrom; John Westendorf; Bob Wood**

STAKEHOLDERS ABSENT: **Louis Brzuzy (represented by Jeff Stevenson, Shell); Ronald Crabtree; Luke Giles; George Guillen; Tracy Hester; Joy Ijharah; Guy Jackson; Kristy Morten; Juan Parras; Bob Stokes; Steve Weishar; Kerry Whelan; Kirk Wiles.**

SUPPORT TEAM PRESENT: **Michael F. Bloom; Larry Koenig; Carl Masterson; Mary Jane Naquin; Randy Palachek; Hanadi Rifai; Monica Suarez.**

OTHERS PRESENT: **Mark Woodall, Oxy Vinyls; Mark Harris, ChemRisk; Laura Ferriby, ChemRisk; Pat Radloff, TPWD; Pete Conwell URS; Lisa Arceneaux; Nicole Cass, Port of Houston; Linda Broach, TCEQ; Deb Sneck-Fahr, USGS; Christina Bowden, USGS: Dean Mericas, LTI; Scott Hinz, LTI; Joel Camann, CDM; Ganesh Ghurye; Jon-Paul Komar, Harris County Storm Water Quality; Joe Phillips, Shell; Steven Johnston, GBEP;.**

WELCOME & INTRODUCTIONS

Mary Jane Naquin welcomed participants and opened the meeting at approximately 1:10 PM and self-introductions were made.

REVIEW AGENDA

Members accepted the agenda as proposed.

ADOPTION OF February 2, 2005 MEETING SUMMARY

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

TMDL PROJECT STATUS

Larry Koenig gave the group a quick summary of where the project stands - data collection is virtually finished, and the modeling portion is just beginning.

Data Collection. Dr. Rifai brought the group up to date on the Quality Assurance Project Plan – it was approved in January 2005 with a non-substantive amendment in July that added additional high-resolution sediment sampling. She reviewed the location of sampling stations and the number of dioxin samples collected over the first three phases of this project; profiles of dioxin in water (problem area in San Jacinto river), sediment (peak levels of dioxin have shifted to the lower end of segment 1007), catfish (levels are high in fish caught in the tributaries as similar levels found in water samples) and crab samples (there is a need for outlier analysis for tissue samples); and seasonal trends in samples (some seasonal variation in tissue that is not found in water/sediment samples). Dr. Rifai pointed out that there are high, or relatively high, levels of dioxin in the side bays of the Houston Ship Channel (HSC) and in tributaries.

Water Quality Targets. There was discussion about identifying water quality targets – should a Houston Ship Channel-specific standard be developed? Should a standard be water quality-based, tissue-based or sediment-based? Should we go with the current .093 standard or an alternate? There is another question of how much sediment contributes to contamination of the water column. There was an effort to collect both shallow and deep samples. The profile shows stratification with deep concentrations that are on average 1.5 times higher than shallow concentrations. A fugacity analysis also showed the possibility of fluxes of dioxins among the various phases. Dr. Rifai presented Toxic Equivalent data (TEQ) that showed peak levels of 2378-TCDD in Segment 1006 for water and sediment TEQ peak levels in the lower portion of Segment 1007).

Sediments. Peter Santschi, Texas A & M University Galveston (TAMUG) is doing a geochronology study of sediment and results to date show dioxin present as long as 100 years ago (non-anthropogenic), but the data from this study has not yet undergone Quality Assurance/Quality Control (QA/QC).

Flow. Dr. Rifai's team took flow measurements at fifteen locations and created flow vs. depth variation curves. Six to eight measurements were taken at each location within a week. The question is 'can instream loads be calculated using the flow data'?

Ambient Air. EPA national studies have pointed to air as a significant source of dioxins. By and large sampling results at the five air monitoring stations show TEQ concentrations are consistent with some peaks and outliers. 2378-TCDD and three other congeners are present in the vapor stage but not in particulates; five to six are found in both gas and particles; while seven to eight are mostly sorbed in particles. For ambient air, the technical team identified a number of sources of dioxin using the EPA's Toxic Release Inventory (TRI). Diesel fuel, unleaded fuel vehicles, utility boilers and pulp mills are the four types of dioxin-generating activities that appear in the data clusters using EPA's Dioxin Congener Profile Source. The data collected for this project seems to show that 2378-TCDD is not present in particles in ambient air (It is present in vapor).

Runoff. The technical team monitored storm water runoff in 2002 and again in 2005. There are still outstanding samples. Comparing the 2002 and 2005 results, there are some changes in the congener patterns. There appears to be nothing definitive to say at this time and this situation requires more thought before any conclusion can be made.

Potential Source. There is a possible source of dioxin in Segment 1001 of the San Jacinto River just upstream of the IH 10 Bridge. It was a facility that went out of business in the 1970s that had abandoned pits and because of subsidence and erosion is now completely submerged. This location is very near where samples in Segment 1001 show high levels of dioxin. Currently TCEQ's Superfund team is doing some follow up investigation as to what the abandoned pits contained. TCEQ is requesting anyone with aerial photographs of this location that would show the facility before it shut down to assist the Superfund Site investigation by sharing the photos.

Load Estimates. Looking at dioxin loads to the channel, from point sources, runoff, and direct deposition compared to the total load leaving the Houston Ship Channel, 2378-TCDD loads total about 16% and TEQ totals are about 59% of the load leaving the channel. For this TMDL the central issue is still from where does the 2378-TCDD come. It is still there, and if we, look at sediment it might provide a little more of the answer as well as looking at the potential source in Segment 1001. The team proposes to examine sediment in Black Duck Bay (no point sources) and calculate the water concentrations from sediment resulting from partitioning from bottom sediment to dissolved phase. Once this partitioning coefficient is calculated, it could be applied to all the other locations and see how it compares to the profile and see if a sediment load can be derived. There are still data gaps and additional study will be needed during the implementation planning phase to get answers.

Modeling. Dr. Rifai briefed the group that the team will be modeling dynamic situations (WASP 7 and DYNHYD models); runoff and atmospheric loads (HSPF model); sediment transport (WASP with measured water-sediment partitioning coefficients). Simulations will be completed for 2378-TCDD and major contributors to TEQ. The lower boundary of the modeling effort will be Morgan's Point. Dr. Rifai guided the stakeholders through the modeling process and what data would be input to the model. There was much discussion among the stakeholders regarding data and the operation aspects of the model.

COMMENTS

The following points were raised at various points during the ongoing discussion among the stakeholders:

- There is a need to look at information on the effect of the salt water wedge on stratification and dissolved oxygen levels.

- There could be a clue to levels of dioxin in stratified sediment in looking at the Clean Water Act and the cessation of discharging once-through cooling water from Ship Channel Industries.
- TCEQ has information to track increases in air emissions of dioxins.
- Need to look at what areas of the Ship Channel were dredged when looking at the data – and what data is coming from dredge and fill sites and does dredging affect water sampling?
- The Port of Houston Authority found no dioxins coming off sediment from their sampling.
- Need to assemble dredging data for the next meeting.
- Need to look at circulation patterns of Upper Galveston Bay and the distribution of sediments.

NEXT STEPS

The final report should be completed by the end of September

MEMBERSHIP ISSUES

Carl Masterson noted that there are a number of stakeholders who have missed multiple meetings and are up for replacement. The group needs to discuss what categories should be represented. It is important to get replacements at the table. Masterson suggested that the group review the attendance record document that was distributed and send any nominations to him and this would be revisited at the next meeting. Mary Jane Naquin pointed out that members should send alternates if they cannot be present at a meeting.

NEXT MEETING

No definite date was set for the next meeting other than it will probably be December 2005 or early January 2006.

ADJOURN

The meeting was adjourned at approximately 3:45 PM.