

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

**January 12, 2006**

**STAKEHOLDERS PRESENT:** Chris Barry; Charles Beckman; Louis Brzuzy Winston Denton; George Guillen; Tracy Hester; Rory Lang; Ed Matuszak; Lial Tischler; John Westendorf; Bob Wood

**STAKEHOLDERS ABSENT:** Scott Aspelin (represented by Nicole Cass); Ronald Crabtree; Luke Giles; Guy Jackson; Sara Metzger; Kristy Morten; Bob Stokes; Jack Wahlstrom (represented by Lial Tischler); Steve Weishar; Kerry Whelan; Kirk Wiles.

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

**OTHERS PRESENT:** Steven Johnston, GBEP; Dave Ramsden, URS; Jason Maldonado, PBS&J; Joe Phillips, Shell; Pat Radloff, TPWD; Laura Ferriby ChemRisk; E. Spencer Williams, ChemRisk; Linda Broach, TCEQ Houston; Jeff Stevenson, Shell;

**WELCOME & INTRODUCTIONS**

Mary Jane Naquin welcomed participants and opened the meeting at 1:04 PM and self-introductions were made.

**REVIEW AGENDA**

Members accepted the agenda as proposed.

**ADOPTION OF August 31, 2005 MEETING SUMMARY**

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

**SUMMARY OF SAMPLING AND ANALYSES**

**Sediment.** Dr. Rifai discussed additional sampling of sediments in Segment 1001 (Lower San Jacinto River) in proximity to an old abandoned and subsided hazardous waste disposal site. Results showed high levels of dioxin. In addition, TCEQ, under its Superfund program sampled independently of the TMDL work but EPA has to review the data and deem it acceptable to them before it can be released. It remains to be seen what the final disposition of this site will be.

Additional points in Segments 1006 and 1007 of the Houston Ship Channel were sampled and found to have lower levels of dioxin than were found in Segment 1001. There is uncertainty as to where the sources might be and that they might be old sources, including the in-the-HSC pipe outfall from an old paper mill. Other possibilities include an old ammunition dump and possible dioxin left over from burning ships.

There might be two different scenarios with sediment –fresh sediment and older deeper sediment. These samples were taken on the side of the HSC, not the dredged channel. This still leaves the mystery of how dioxin, dated by the geological chronology study, was present 100 years ago, and was the sediment aging correct? There was discussion about what might have been happening prior to 1950 and should an effort be made to identify activities to help give a reality check. This could be problematic in any implementation strategy. There was no resolution reached on the topic of old sources.

Regarding the subsided hazardous waste site, a question was asked as to how the data collected should be given to the Corps of Engineers, the responsible agency for dredging - issuing permits to dredge and to dispose of dredged materials. Texas Parks & Wildlife is pursuing cessation of dredging activity in Segment 1001.

**Runoff.** The final round of sampling storm water runoff is finished. Knowing the levels of dioxin in ambient air, UH wants a predictive model that could estimate the dioxin load from runoff. The same compounds show up in sediment and air, so Dr. Rifai feels comfortable in combining the different sources. The project collected soils from different watersheds but there is not a strong correlation as is gotten from stream sediments. The effort was to try to get soil samples from different land uses and the samples were composites (5 samples from each watershed monitored). More information will be contained in the FY 2006 First Quarterly Report to TCEQ.

**Point Source Load.** Looking at 2378-TCDD (the most toxic member of the dioxin family) the total permitted and self-reported loads for Segments 1014 & 1017, 1007, 1016, 1006, 1001, 1005, and Side Bays (all upstream of Galveston Bay) are 57,100 ng/day and 23,300 ng/day. The permitted Toxic Equivalent (TEQ) is 235,400 ng/day and the self-reported TEQ is 91,700 ng/day.

**Runoff Load.** Determined using SCS curve method and average daily precipitation for the year 2002. The dioxin concentrations were measured in 2003 and 2005 and assigned by proximity to segment watersheds. The 2378-TCDD and TEQ in ng/day for the various watersheds are: Brays Bayou (5,300/51,800); Buffalo Bayou (3,600/23,400); Carpenters Bayou (4,700/47,300); Greens Bayou (30,600/210,600); Hunting Bayou (2,000/38,100); Sims Bayou (1,000/6,600); San Jacinto River (63,400/641,800); Vince Bayou (300/3,300); and White Oak Bayou (5,500/57,000). The totals are 116,400 ng/day of 2378-TCDD and 1,079,900 ng/day TEQ.

**Direct Deposit Load.** These loads include both dry and wet deposition and non-detects are assumed equal to .5MDL for load calculations. Again, loads are in ng/day for 2378-TCDD/TEQ for classified segments. 1014 & 1017 (500/4,100); 1007 (7,300/64,600); 1016 (900/8,200); 1006 (10,000/88,500); 1001 (9,900/87,600); 1005 (21,300/188,400) and Side Bays (45,200/400,200). The totals are 95,100 ng/day 2378-TCDD and 841,600 ng/day TEQ.

**In-stream Load.** These are based on the average water quality for the various water quality segments and the net flow out of each segment (average of flows measured in April-May 2005 at downstream ends of segments). Again, the measurements are in ng/day for 2378-TCDD and TEQ. 1014 & 1017 (7,500/28,600); 1007 (1,589,800/2,451,000); 1016 (15,400/67,100); 1006 (2,434,900/3,459,500); 1001 (7,648,300/10,938,700); 1005 (1,255,700/2,319,200); Side Bays -assuming flow measured at Burnett Bay for all side bays - (2,921,400/5,029,200).

**Mass Balance.** Percent contribution to in-stream load calculations were made for 2378-TCDD and TEQ. For point sources the average self reported flows were used. Segments 1007 and 1006 include tributaries.

	point source	runoff	deposition	instream load minus - total of loads
1007	0.6/1.6	2.4/12.8	0.5/2.8	82.8
1006	0.3/0.6	1.5/7.4	0.4/2.7	89.2
1001	0.1/0.1	0.8/5.9	0.1/0.8	93.3
1005	0.2/0.8	0.1/0.7	1.7/8.1	90.4
Side Bays	0.1/0.2	0.1/0.5	1.5/8.0	91.3

The mass balance indicates the major portion of the instream load is instream and not coming from point sources or runoff or atmospheric deposition.

### **STATUS OF MODELING WORK**

There was much discussion over the adequacy of the models used and whether they can answer the questions and is there need for more complex modeling. There may be enough data now to know what the existing dioxin load is and what the load that would meet water quality standards is. There may not be more modeling needed but if we get into the questions for implementation of how the sediments move around in the channel and how much that affects things, then we would be looking at a very complex model. Do we need to know how it moves or should the effort go to finding the hot spots and remediate. There seemed to be no consensus on the need for more complex modeling and that there are still questions to be answered including whether samples should have been collected from the dredged portion of the ship channel, but then that is not very feasible. The discussion continued on whether that level of assessment is needed to reach a TMDL number and proceed with implementation. There followed some discussion on the effect of

the salt water wedge coming up the channel from Galveston Bay and what happens to sediment stirred up by the ships in the channel. To get an adequate model to identify sources a more complex model is needed.

### **NEXT STEPS**

At the end of the discussion, the group agreed that Dr. Rifai move forward with a vertically one-dimensional hydraulic model and come back to the group at the next meeting with what knowledge has been added. Dr. Rifai's team will also look at the salt wedge issue and address sediment partitioning loads.

### **MEMBERSHIP ISSUES**

Carl Masterson noted that there are currently two vacancies and that he has been unable to reach one member. That person represented the Greater Houston Partnership and they are trying to contact the member. He then reported that one replacement has been recommendation by Ed Matuszak, who represents the citizens of La Porte. The group had a brief discussion and by consensus welcomed Dr. David Ramsden to the group, representing the public.

### **NEXT MEETING**

The group discussed meeting again sometime in late May or June 2006.

### **ADJOURN**

The meeting was adjourned at approximately 4:00 PM.