AGENDA

TRINITY RIVER PCB TMDLs PUBLIC MEETING

NORTH CENTRAL COUNCIL OF GOVERNMENTS
616 SIX FLAGS DRIVE
CENTERPOINT II (TOM VANDERGRIFF CONFERENCE CENTER)
REGIONAL FORUM ROOM , FIRST FLOOR

Thursday, August 11, 2011
1:30 P.M. – 3:30 P.M.

1. **Welcome & Introductions**

2. **General Overview of Texas TMDL Program**

2. **Overview of Trinity River PCB TMDL Project**
   - PCBs Review
   - PCB Conceptual Model
   - Data Collection Summary (March 2008 – August 2008)
   - Preliminary Data Results (March 2008 – August 2008)
   - Endpoint Identification
   - Pollutant Source Assessment
   - Existing Loads
   - Draft Load Allocations

3. **Open Discussion of Ongoing TMDL Project Work and Next Steps**

4. **Adjourn**

The TCEQ web page for this TMDL project may be found at:
http://www.tceq.state.tx.us/implementation/water/tmdl/77-trinity_pcbs.html
The web page includes the project overview, meeting information,
meeting summaries, and project documents.

NCTOG Offices Locator Map Available at www.nctcog.org/aa/locator_map.asp

Attendees:

Susan	Alvarez	City of Dallas
Ray	Averitt	Oncor - Dallas
Bonnie	Bowman	Fort Worth Sierra Club
Sam	Brush	North Central Council of Governments
Mark	Ernst	Tarrant Regional Water District
Mike	Garza	City of Coppell
Becca	Grassl-Petersen	Tarrant County Public Health
Jeff	Heath	USDA-NRCS
James	Hoelke	Lockheed Martin Aeronautics Company
Suzanne	Hoff	
Chris	Horner	EPRI
David	Jefferson	Tarrant County
Tom	Moore	City of Irving
Marc	Paustian	City of Arlington
Clyde	Picht	TRIP
Elaine	Ritchie	ONCOR Electric Delivery
David	Rutledge	Luminant
Bob	Scott	TCEA
Jeff	Shiflet	City of Irving
Dewey	Stoffels	City of Grapevine
Vicki	Stokes	City of Fort Worth
T.	Sury	City of Grand Prairie
Jennifer	Vuitel	North Central Council of Governments
Libby	Willis	Oakhurst Neighborhood Association

Support Staff:
Dania Grundmann – Texas Commission on Environmental Quality (TCEQ)
Earlene Lambeth – TCEQ
John Mummert – TCEQ – Region 4
Ron Stein - TCEQ
Kirk Dean – Parsons Corporation

Administrative Issues

The fifth informal public meeting of the Trinity River Polychlorinated Biphenyls (PCBs) Total Maximum Daily Load (TMDL) Project was hosted by the North Central Council of Governments (NCTCOG) on Thursday, August 11, 2011. The meeting was scheduled by the TCEQ to update the public on the development of TMDLs that are addressing elevated PCBs in fish of the Trinity River watershed. The goal of the TMDL project is to determine the allowable loads of PCBs that the impaired stream segments of the Trinity River can receive and still meet the fish consumption use. The consumption use is impaired as a result of the Texas Department of State Health Services (DSHS) fish consumption advisories in the Clear Fork Trinity, West Fork Trinity, and Trinity River in

the Dallas-Fort Worth Metroplex. The meeting was well attended and self-introductions were made by all meeting attendees.

Dania presented a brief overview of the TMDL program. She reported that a Total Maximum Daily Load (TMDL) determines the maximum amount (load) of a pollutant that a water body can receive and still maintain its designated uses, and allocates this load to broad categories of sources in the watershed. She explained that the project is now in the developmental phase and a draft TMDL report is expected to be completed by the end of the summer. At that time, another public meeting will be scheduled with the area stakeholders to receive the public comments on the TMDLs. After the TMDL is formally adopted by the Commission, the TCEQ will support a local stakeholder effort to draft a TMDL Implementation Plan (IP). An implementation plan typically includes management measures to reduce pollutant loading to achieve the water quality objectives of the TMDL. Dania stressed to the stakeholders that there was no need to wait for the TMDLs to be adopted before management measures begin. She said that the TCEQ would assist in the IP development by forming various work groups or committees with input from local partners or stakeholders. These groups will draft measures that meet the specific needs of the community and outline how water quality restoration will be achieved over time.

Polychlorinated Biphenyls (PCBs)

The next presentation was by Dr. Kirk Dean with Parsons Corporation, the consultant contracted for the TMDL project. Kirk explained that the impaired areas originally included approximately 150 stream miles in the greater DFW area. Kirk explained that a recent DSHS advisory (July 2010) extended the fish consumption advisory to include about 174 stream miles from Fort Worth in Tarrant County, and extend downstream, to the discharge of Cedar Creek Reservoir in Henderson/Navarro counties and include the following four segments:

- All fourteen miles of Clear Fork Trinity River Below Lake Benbrook, Segment 0829;
- All thirty-three miles of West Fork Trinity River Below Lake Worth, Segment 0806;
- All twenty-seven miles of Lower West Fork Trinity River, Segment 0841; and
- All one hundred miles of Upper Trinity River, Segment 0805.

Kirk also reviewed with the group the basic information about PCBs and explained that the group of 209 compounds (congeners) collectively known as PCBs have varying toxic effects, limited water solubility, and tend to be associated with sediments in aquatic systems. PCB congeners are also known to partition into fish tissue (due to the fat content of the fish). The production, distribution and new use of products with these compounds were banned in 1976 by the Toxic Substances Control Act (TSCA). One of the main uses of PCBs was in electrical transformers. PCBs were sold in middle part of the century in the United States under the trade name Aroclor used in transformers and

a lot of other uses. Kirk reported that because they were so stable they stayed in service in these uses and products for a very long time.

PCBs in the Trinity are found in the dissolved phase and associated with suspended solids in the water. Kirk explained that because PCBs do not like to be in water and tend to build up in the fish tissue and sediments over time. Kirk said the suspended sediments will settle over time and become part of the surface sediment layer and the PCBs can become buried in the sediments or re-suspended back into the water column. Kirk reported PCB removal mechanisms from the water system include volatilization into the atmosphere, photo-degradation, biodegradation processes which tend to be slow, or outflow. He also said that sediment with more organic matter, algae and fine-grained sediments such as clay and silt can absorb a much larger amount of PCBs relative to coarser-grained sediments such as sand and gravel.

PCB Sampling

Kirk explained that in order to get a better handle on the existing concentration of PCBs in the system as well as to quantify the sources, PCB concentration data was collected between March and August of 2008. PCB concentrations were measured in-stream in the Trinity River (both suspended and dissolved phase), in sediment at 77 sites (32 in the main stem and 43 from the tributaries), in wastewater discharges of the 4 major waste water treatment facilities in the area, and in storm water at 5 different sites. The individual PCB congeners were quantified by EPA Method 1668A. The results of the congeners are presented as the sum or total of all the PCB congeners in nanograms per liter (ng/L).

Monitoring Data

Kirk provided a log scale graph depicting the partitioning of PCBs between the dissolved and suspended sediment phases in water. The graph included ambient, stormwater and wastewater treatment plant (WWTP) effluent samples. He noted the relationship between particulate and dissolved phase concentrations is not perfect but strong, as predicted by theory and seen in most other systems that have been studied.

Data collected in the spring under moderate flow conditions indicates that more than half of the PCBs tended to be associated with the suspended particulate phase in water. The data shows that from the confluence of the Clear Fork the total PCB levels rose from approximately 1 ng/L up to 3 ng/L. In August under very low flow conditions PCBs were measured in water in three different locations. While the dissolved PCB concentrations under low flow conditions were similar to those measured under moderate flow conditions, the suspended particle-associated PCB concentrations were substantially lower.

Sediment data show PCB concentrations peaking below downtown Fort Worth, declining and peaking again in Arlington, declining again, and then peaking again below downtown Dallas. Comparing current PCB concentrations to those measured in the

1970's – 1980's, it appears that PCB concentrations in Trinity River sediments have had a fairly significant concentration drop by a factor of roughly 10 in the sections of the river downstream of Fort Worth. Kirk reported that could have been due to changes in analytical methods.

TMDL Water Quality Endpoint Identification

The water quality criterion for total PCBs was discussed and recent fish tissue samples by the Department of State Health Services were used to calculate a bioaccumulation factor – the ratio of PCBs in fish tissue to PCBs in water. Kirk explained new 2010 TCEQ surface water quality standards that include new criteria for PCBs in fish tissue (19.96 ng/g.).

Source Analysis

Kirk explained that in central Dallas storm water does not generally flow directly into the Trinity River. He explained that it is stopped just outside the levee in large sumps and that allows some of the solids and pollutants to settle out before the waters are pumped across the levees into the river.

Sampling Results

Kirk reviewed each of the concentration levels measured and the results and conditions shown in a slide presentation. Kirk said there were so many details and information time didn't allow for presenting it all at the meeting. He said the final technical report on the entire study could be accessed online at the project web site for review.

A water quality model was developed to facilitate TMDL calculations based on ambient data measurements. Under current conditions, the model indicates that in the system as a whole, the net flux of PCBs from historical sediment contamination that is re-suspending into the water column represents 63% of the overall source of PCBs. Point source runoff comprises about 17% of existing PCB loads, wastewater treatment facilities about 8%, non point source runoff about 3%, and upstream (non-impaired tributary) sources comprise of about 10% of the total load.

A public comment meeting will be held for the stakeholders to comment both oral and written. After the public comment 30 day period, comments incorporated if necessary for additional changes to the draft TMDL, the TMDL will be taken to the TCEQ Commission for adoption. The next step after that is to submit to the EPA for approval.

Question and Answers

Question: You mentioned that PCB can come into the water from the air. What do we know about - say, NOx (nitrogen oxides), formaldehyde or benzene coming from emissions from the gas drilling? Do any of those have any particulate?
Answer – KD: There is an exchange of those other organic compounds with the water. However PCBs are large molecule and do not tend to like to be in air or volatilize from water back to the air.

Question: When you are collecting data are there stratification of PCBs in the water? Are they in water or sediment or both?
Answer - KD: These samples are all from the middle of the water column and we did not do any vertical stratification. In most cases the samples were collected when the water was flowing well and mixed from the surface to the bottom.

Question: Can you explain nanograms vs. micrograms per liter?
Answer – KD: It is a million times smaller than a milligram per liter. 1 part per trillion. We had to collect about 400 liters of water and concentrate the PCBs on the fly. They were collected and concentrated over about 6 hours for each sample to avoid losing PCBs through the large samples and transportation of the sample. That was another reason a lot more sediment samples were taken.

Question: Are you finding a lot of sediment that is releasing PCBs back into the water column? Are loose sediments abundant?
Answer – KD: Yes, non-consolidated sediments are abundant in most areas. There are certain reaches, as an example in Arlington where the water is fairly fast flowing and not a lot of unconsolidated fine sediments. But in most areas those fine sediments were loose and unconsolidated. Kirk reported he did have the geochemical data (grain sizes, etc.) but did not make it a part of the presentation. He said there were areas that had gravel as part of the substrate such as in the West Fork in Arlington.

Note: Due to issues with the recording CD all questions and answers were not able to be transcribed.

Dania closed the meeting by repeating that the next step is to finalize the draft TMDL in late 2011 based on the final report received from Parson's. There will be a public comment meeting scheduled that includes a 30 day comment period before taking the TMDL to the commission for approval. Once approved, the TMDL would be sent to the EPA for approval. The next step would be to start on the Implementation Plan. Dania encouraged the stakeholders to send any general comments or issues to her by e-mail. Staff was available for any questions after the meeting closed.

Please visit the project web page: http://www.tceq.texas.gov/waterquality/tmdl/77-trinity_pcbs.html for all data results associated with this project and other project information. The web page also includes the project overview, meeting information, previous meeting summaries, reports, and project documents.

Dania Grundmann said that if anyone had further questions to contact her at dania.grundmann@tceq.texas.gov or (512) 239-3449. The meeting was adjourned.

Table 21. Summary of source categories and existing PCB daily loads to impaired AUs.

AU	Average Daily Loads (mg/day)							
	External Loads					Sum of External Loads to AU[b]	Internal Load	Load at Downstream Boundary of AU
	WW Discharges	Permitted SW Runoff	NPS Runoff	Upstream Sources[a]			Sediment Exchange[c]	
				Non-impaired	Impaired			
0829_03	0	10	1	30[d]	0	41	0	41
0829_02	0	61	80	0	41	182	173	355
0829_01	0	40	0	0	355	395	453	848
0806_02	0	180	6	33[e]	0	219	310	529
0806_01	0.008	520	147	0	1203	1,870	-24	1,846
0841_02	371	113	0	10[f]	1,846	2,340	6,960	9,300
0841_01	332	213	4	607[g]	9,300	10,456	-2,186	8,270
0805_04	0.71	1,673	0	694[h]	8,270	10,638	2,371	13,009
0805_03	602	162	0	130[i]	13,008	13,902	10,064	23,966
0805_06	169	84	32	0	23,966	24,251	1,437	25,688
0805_02	0	20	90	183[j]	25,688	25,981	-2,161	23,820
0805_01	0	0	78	0	23,820	23,898	-5,097	18,801
Total Daily Load (mg/day)	1,475	3,076	438	1,687			12,300	
Total Annual Load (g/year)	538	1,123	160	616			4,490	
Percent of Total Load	8%	16%	2%	9%			65%	

a upstream non-impaired designated Segments and impaired AUs
b includes wastewater discharges, permitted storm water runoff, NPS runoff, upstream sources, and immediate upstream impaired AU
c Negative numbers indicate areas where there is net flux of PCBs to the sediments
d Lake Benbrook (Segment 0830)
e Lake Worth (Segment 0807)
f Lake Arlington (Segment 0828)
g Mountain Creek Lake (Segment 0841A)
h Elm Fork Trinity River (Segment 0822)
i White Rock Lake (Segment 0827)
j East Fork Trinity River (Segment 0819)

Table 19. Storm water runoff loads to TMDL assessment units. Loads calculated using GWLF output (flow and TSS), tributary sediment PCB concentrations, and percent of AU watershed under permitted MS4 coverage.

			Existing Total PCB Load in Runoff				
			All Storm Water	MS4-Permitted Storm Water		NPS Storm Water	
AU	Average Flow (cms)[a]	Percent MS4 Coverage	Daily (mg/day)	Daily (mg/day)[b]	Annual (g/year)[d]	Daily (mg/day)[c]	Annual (g/year)[d]
0829_03	0.3	93	11	10	4	0.8	0.3
0829_02	2.4	43	141	61	22	80	29
0829_01	0.1	100	40	40	15	40	15
0806_02	1.0	97	186	180	66	6	2
0806_01	6.7	78	667	520	190	147	54
0841_02	4.5	100	113	113	41	0	0
0841_01	5.8	98	217	213	78	4	1
0805_04	4.0	100	1673	1673	611	0	0
0805_03	2.4	100	162	162	59	0	0
0805_06	4.2	72	116	84	31	32	12
0805_02	11.7	18	110	20	7	90	33
0805_01	4.8	0	78	0	0	78	28
Overall	47.8	--	3483	3170	1157	313	114

[a] Runoff flows from the GWLF; cms = cubic meters per second

[b] Total PCB load (all storm water) times the percent of watershed covered by MS4 permits

[c] Total PCB load (all storm water) minus permitted storm water PCB load

[d] Daily Load multiplied by 365 and converted to g/year

Table 11. TPDES-permitted wastewater point sources that discharge directly into an impaired assessment unit (AU). Highlighted facilities are those that discharge the vast majority of the wastewater effluent in the TMDL Study Area, and from which effluent PCB samples were collected. PCB loads for the sampled facilities were calculated using the measured PCB congener concentration for each plant and the average of monthly self-reported flow for the years 2004 through 2008. PCB loads at the other facilities were calculated using the average PCB concentration from the four sampled facilities (0.88 ng/L) and the average monthly self-reported flow for each facility. MGD = millions of gallons per day.

				Flow (MGD)		Existing Total PCB Load	
AU	**TPDES Permit No. (WQ00--)**	**Permittee**	**Effluent Type[a]**	**Permitted**	**Avg. Self-Reported**	**Daily (mg/day)**	**Annual (g/year)**
0829_03	N/A	No direct discharges to this AU	N/A	N/A	N/A	0	0
0829_02	N/A	No direct discharges to this AU	N/A	N/A	N/A	0	0
0829_01	N/A	No direct discharges to this AU	N/A	N/A	N/A	0	0
0806_02	N/A	No direct discharges to this AU	N/A	N/A	N/A	0	0
0806_01	03730-001	Chevron USA, Inc.	IW/SW	[b]	0.0025	0.008	0.003
0841_02	10494-013	City of Fort Worth – Village Creek WWTP	WWTP	166	108.4	371	135
0841_01	03446-000	Hanson Pipe & Precast, Inc.	IW/SW	[b]	1.06	3.53	1.29
	10303-001	Trinity River Authority – Central WWTP	WWTP	189	137.2	328	120
0805_04	04161-000	Hines Reit 2200 Ross LP (Chase Tower)	GW	0.155	0.166	0.55	0.20
	04663-001, -002	Buckley Oil Company	SW	[b]	0.022	0.073	0.027
	04765-000	2100 Ross Realty LP (San Jacinto Tower)	GW	0.0291	None reported	0.089	0.032
0805_03	10060-001	City of Dallas – Central WWTP	WWTP	200	122.5	602	220
0805_06	14628-001	D-BAR-B Water-Wastewater Supply Corp.	WWTP	0.024	0.0015	0.005	0.002
	10060-006	City of Dallas – Southside WWTP	WWTP	110	64.5	169	61.7
0805_02	N/A	No direct discharges to this AU	N/A	N/A	N/A	0	0
0805_01	N/A	No direct discharges to this AU	N/A	N/A	N/A	0	0

[a] WWTP = domestic wastewater treatment plant; IW = industrial wastewater; SW = storm water; GW = groundwater

[b] Flow is permitted as *intermittent and variable* with a requirement to measure and report the actual amount.

Table 12. TPDES-permitted wastewater point sources that discharge into upstream tributaries within the TMDL Study Area. N/A = not applicable.

AU Watershed	TPDES Permit No. (WQ00--)	Permittee	Effluent Type[a]	Permitted Flow (MGD)
0829_03	N/A	No permitted facilities in the upstream watershed	N/A	N/A
0829_02	N/A	No permitted facilities in the upstream watershed	N/A	N/A
0829_01	N/A	No permitted facilities in the upstream watershed	N/A	N/A
0806_02	N/A	No permitted facilities in the upstream watershed	N/A	N/A
0806_01	02831-000	Reagent Chemical & Research, Inc.	IW/SW	[b]
0841_02	03993-001 and -002	Citgo Products Pipeline Company	IW/SW/GW	[b]
0841_01	12982-001	Regency Conversions, Inc.	WWTP	0.005
	11032-001	Chester Alan Andrews – Alta Vista Mobile Home Park	WWTP	0.008
	01441-001, -014, -019, -023, and -025	Dallas/Fort Worth International Airport	SW	[b]
	01250-003	Extex Laporte LP – Mountain Creek Lake Steam Electric Station	SW	[b]
0805_04	14699-001	Dallas County Park Cities MUD – Water Treatment Plant	FB	0.72
0805_03	N/A	No permitted facilities in the upstream watershed	N/A	N/A
0805_06	04687-001 and -002	Univar USA, Inc.	SW	[b]
0805_02	10948-001	Trinity River Authority – Ten Mile Creek WWTP	WWTP	24
	13415-001	Trinity River Authority – Red Oak Creek WWTP	WWTP	6
	14795-001	City of Palmer	WWTP	0.226
	02519-000	Hanson Aggregates West, Inc.	SW/GW	0.3
0805_01	14471-001	Scurry-Rosser Independent School District	WWTP	0.04

[a] WWTP = domestic wastewater treatment plant; IW = industrial wastewater; SW = storm water; GW = groundwater; FB = filter backwash water

[b] Flow is permitted as *intermittent and variable* with a requirement to measure and report the actual amount.

TMDL calculations for total PCB daily waste load and load allocations (mg/day) in the impaired AU watersheds

AU	TMDL at d/s end of AU (mg/day)	Waste Load Allocations (mg/day)		Load Allocations (mg/day)			
		WLA_{WW}	WLA_{SW}	LA_{SW}	LA_{US}	LA_{TRANS}	LA_{SED}[a]
0829_03	41	0	10	1	30	0	0
0829_02	325	0	52	69	0	41	163
0829_01	332	0	6	0	0	325	1
0806_02	376	0	116	4	33	0	224
0806_01	486	.0046	76	18	0	708	-316
0841_02	1265	402	16	0	10	486	351
0841_01	1541	460	29	2	607	1265	-821
0805_04	4467	0.44	234	0	694	1541	1998
0805_03	6045	484	23	0	130	4467	941
0805_06	4950	266	12	5	0	6045	-1378
0805_02	6640	0	3	13	183	4950	1491
0805_01	6411	0	0	11	0	6640	-240

[a] Negative numbers reflect a PCB flux from water to sediment.

[b] The upstream load from Mountain Creek Lake was calculated using the average flow and the site-specific water quality endpoint (0.64 ng/L). Current PCB loads exceed this level. A separate TMDL has been completed for Mountain Creek Lake.

WW=wastewater; SW=stormwater; d/s=downstream; US = upstream (non-impaired) segments; TRANS = transfer between impaired AUs; SED = sediment exchange; WLA = wasteload allocation; LA = load allocation; AU = assessment unit