Saginaw Tittabawassee Rivers Contamination CAG
Summary of Full CAG Meeting
Saginaw Valley State University – Curtiss Hall
Monday, May 21, 2012

CAG Members Present
Drummond Black
Charles Curtiss
Leonard Heinzman
Ryan Jankoska
Wendy Kanar
Michael Kelly
Laura Ogar
Judith Lincoln
Joel Tanner
Paul Vasold
Bob Weise

CAG Members Absent
Jeffrey Bulls
Matthew de Huis
Deborah Huntley
Rachel Larimore
Janet McGuire
David Meyer
William Webber

Ex-Officio Members Present
Joe Haas, US FWS
Todd Konechne, Dow Chemical
Mary Logan, US EPA
Al Taylor, Michigan MDEQ

Support and Agency Staff Present
Mary Breeden, USEPA
Cheryl Howe, MDEQ
Diane Russell, US EPA
Doug Sarno, Facilitator

Doug Sarno called the meeting to order at 6:10 PM. Agenda items Included:

- Leadership Team and Project Updates
- Sediment Traps, Overview and Status of Evaluation
- Health of the Saginaw River/Bay Watershed
- Personal Reflection on Dioxin, Dr. Neill Varner

1. Leadership Team Update

- The CAG needs a volunteer to fill the third slot on the Leadership Team. Judi Lincoln is stepping down after this meeting, but will remain a member of the CAG A three-person team makes it more manageable and ensures good coverage at meetings.
- The CAG is looking for a permanent solution for videotaping meetings. We are getting the word out for alternatives, please let Ryan Jankoska know if you have any leads or ideas for him to pursue.
- We received a letter from University of Michigan Professor Dr. Brian Zikmund-Fisher regarding a National Institute for Environmental Health Sciences-funded study on "Community Perceptions of Dioxins". The Study used both in-depth qualitative interviews and a large-scale mailed survey to explore the mental models that residents of Midland and Saginaw counties hold of dioxins and dioxin-like compounds. The approach focuses on comparing a consensus expert model (derived from interviews with government, academic, and community group leaders) with beliefs of community residents to clarify what people believe about what dioxins are, where they come from, how they exist and move in the environment, and how they might get into people. It was agreed that the CAG would invite Dr. Zikmund-Fisher to present the study at a future meeting.

2. Project Updates

- Segment 1 cleanup activities are still on track, the DNAPL removal efforts will begin later in June.
- EPA Community Outreach has conducted five events in 2012. Also 1,000 information brochures have been distributed, and the most recent newsletter was released after the last CAG meeting. Saginaw County has also handed out brochures at 17 events. Schools partners visited about 70 classrooms reaching approximately 2000 students. The “Fishwalking” program will begin this week to distribute Fish and Game advisory material directly to fishermen. EPA is also planning to have booths at County Fairs and other locations this summer.

3. Sediment Traps, Overview and Status of Evaluation

- Mary Logan, EPA Remedial Project Manager, provided an overview of efforts to date. EPA has received a number of requests about the use of sediment traps,

EPA will provide a background and discussion of how sediments move and how sediment traps work.

- The Saginaw River is much more industrial than the Tittabawassee River. It is actively dredged by the US Army Corps of Engineers. The Saginaw Bay and River are designated a Great Lakes Area of Concern.
- Victor Magar, a consultant to Dow, provided an overview of sediments in the rivers. Sediment is inorganic weathered rock that mixes with organic material as it moves. Sediment in the Tittabawassee River is mostly sand, while in the Saginaw River it is mostly silt and clay. Sediment deposited into the Saginaw Bay is mostly sand and silt. Flowing water is the main driver for sediment transport, the speed and volume of water flow greatly affect the volume and nature of sediment transfer and deposit. Larger particles are harder to move and therefore settle out faster.
- All of this information is used to measure how flow moves particles in a river. Bed Shear stress describes the stress (friction) created by water which moves sediment. Deeper sediments move less easily, surface sediments more easily, some level of suspended sediments also exist at any given time.
- Sediment traps work to reduce the energy of water to move sediments and thus cause sediments to deposit by making the river wider and/or deeper. Increasing the area of the river decreases the velocity of water resulting in sediment deposit and accumulation. Effective traps will collect and hold particles at a single location and can reduce need for downstream dredging and allowing the material to be removed at the single location.
- Several reports have been developed on sediment traps on the Saginaw River since 2001. The first report was a mathematical analysis which showed a trap could collect heavier particles but finer particles would be more difficult. The 2008 pilot project feasibility study at the Sixth Street Turning Basin showed that site-related dioxins can be effectively captured. A 2012 report looked at potential for traps in the upper Saginaw and showed the same conclusions.
- The Sixth Street Turning Basin fills up quickly between dredging events, about 20,000 yd3 per year, and the basin itself provides an effective trap without additional activities.
- EPA has committed to complete an assessment of sediment traps by the end of 2012. EPA is actively exploring a project to enhance what is happening at the Sixth Street Turning Basin now that would help both the Army Corps and the EPA. This would require Army Corps agreement.
- CAG Question: Are you looking at other areas for sediment traps or just the SSTB? SSTB makes a lot of sense from a geographic sense. Corps originally was looking further down the river, but this area makes the most sense. Tittabawassee very different.
- CAG Question: Have we tested the sediment for dioxin? Yes, the Army Corps tests its sediment, plus the Dow team mobilized before dredging in 2011 to test recent deposits. The average was 2,200 ppt of dioxin but there is a high level of variability.
- CAG Question: Has the Saginaw Bay been tested, it looks like a deposition point as well? Yes, the Bay tends to drop off in terms of contamination, generally less

than 100 ppt (Beach samples very low, basically background levels), though we do not have a high density of data for the Bay at this point. Not doing a lot of testing until river cleanups are complete as that will dramatically change what is flowing into the Bay.

- CAG Question: Is the Turning Basin working well now to catch dioxin? Yes, as long as it is dredged regularly, it is working well as a trap.
- CAG Question: If we had installed traps in the Tittabawassee, wouldn't that have stopped the contamination long ago? Hard to answer, but any hole will slow down velocity and sediment will fall out, but the level of efficiency not certain.
- CAG Question: Is the affinity of dioxin to attach to sand a function of the sand? It is a function of how material was released as particles so it sticks with particles of similar size.
- CAG Question: What about other industries upstream, are we looking at other contaminants in the materials in the turning basin? Not at this time, will be looking at this later on to see implications of additional sources.
- CAG Question: How does the sediment get removed and does it stir up the sediment? It is dredged, and yes this does re-suspend some of the sediments. EPA has tested water systems during dredging to ensure that no additional contamination gets into water systems during dredging. Also the Army Corps often uses environmental clamshells to help limit re-suspension. It is not in EPA's purview to tell the Army Corps how to do its dredging. Actually, boat propellers in the turning basin are much more impactful on turbidity than the dredging.
- CAG Question: During the river tour, it seemed that there were a few spots of bank erosion in Tittabawassee, are we helping to control that erosion to keep sediment from moving down stream? Yes, we are looking at that now as part of next activities, and bank stabilization has occurred at a number of spots already. Reaches J, K, and O have been done, and this is ongoing work. Silt curtains and sheetpiling are will be used to help prevent erosion during cleanup activities. However, testing shows that even without these controls the turbidity shows limited impact.
- CAG Question: What about hydraulic dredging instead of mechanical, wouldn't you be able to do that more often? Hydraulic dredging does not work with debris so that has been a limitation in the project area. Not sure what the debris levels are at the turning basin.
- Public Question: What is the lifespan of these traps? The flow at the Sixth Street Turning Basin would suggest dredging every 2-4 years, large traps would obviously last longer.

4. Health of the Saginaw River/Bay Watershed

- Michelle Selzer, MDEQ Saginaw Bay Area of Concern and Lake Huron Coordinator, provided an overview of the history of the area. Her presentation and handout are available online. We used to see a lot of fish kills, but not anymore, it is now a world-class walleye fishing destination. We have lost lots of wetlands over time. There are over 300 dams and barriers in the watershed and there is a lot of work to create fish passages to get past these barriers. Nutrients

and bacteria are also a significant concern, but significant improvements and progress is being made.

- The Saginaw River/Bay Area of Concern looks at the overall watershed, Saginaw is largest of 14 AOCs in Michigan. This program looks at 10 specific beneficial use impairments such as loss of habitat and beach closings. It is non-regulatory and relies on partnerships and agreements to get work done.
- Ongoing impairments in the Saginaw AOC include bird and animal deformities, degradation of benthos, restrictions on dredging, undesirable algae/degradation of phyto- or zooplankton populations, beach closings, degradation of aesthetics, loss of fish and wildlife habitats/degradation of populations.
- Major struggles have included lack of resources to move projects forward, but many of these projects are being identified as a priority. Many partners are working on projects. The Great Lakes Restoration Initiative, a $475 millon/year effort is looking at a wide variety of projects including non-point source restoration and assessments.

5. Personal Reflection on Dioxin, Dr. Neill Varner

- Dr. Neil Varner, presented his insights as a private citizen and physician in the area since 1971, not as a representative of the County. Several members of the CAG had recommended him to speak to the CAG.
- He provided a short history of Dow's production of dioxin in support of Agent Orange. Health effects were identified quickly. There was also an Agent White, which has been outlawed for some time. DDT was another compound that was banned around this time, along with the establishment of the EPA. Superfund was established by Congress in 1980 to deal with abandoned hazardous waste sites, then the Agency for Toxic Substances and Diseases Registry to help look at health effects. 85 of 1300 Superfund sites are in Michigan.
- A dioxin study in Italy looked at 1976 plant explosion and impacts on surrounding residents, barrels of waste sent to France then to Switzerland for incineration. Potential health effects were studied, blood was taken and saved and this work is still used today to look at dioxin. The first EPA dioxin plan was developed in the 1980s. In 1978, Dow sent a letter to Michigan based on their findings in the river of dioxin and fish advisories followed quickly thereafter. In 1994, the EPA dioxin draft reassessment was produced through multiple science advisory boards and public comment. EPA has always been rigorous of public engagement and we need to be appreciative of that. When the public, industry, and government are all involved, this can lead to a lot of controversy.
- A 1979 UK article in the Ecologist "Can Pollution Be Controlled" is a good resource.
- ATSDR was petitioned by a local resident for a health consultation. This concluded an indeterminate risk to health. A follow-up request was made in 2006 and this concluded that fish consumption presented a significant risk.
- Many health effects and papers on research have been produced over the years point to many health effects of all sorts. Dr. Linda Birnbaum in 2011 testified that there was an increase in coronary heart disease in relation to Agent Orange. The

precautionary principle has resulted in significant changes to environmental approach. 275 chemicals are on EPA's most hazardous list. The 1994 dioxin draft reassessment was sent to the National Academy of Sciences for review, first part finally published in 2012 on non-cancer endpoints, with the cancer portion to be published in the future. The non-cancer report identifies a level below which dioxin does not pose significant risk, at a level well below that in Europe.

- Russian study shows that TCDD could damage all gene pools in the world, but that does seem rebuttable. New study on children has begun to look at 100,000 children, five counties in Michigan are being included and TCDD will be looked at as part of that 20 year study.
- 1958 Delaney Clause said that any chemical shown to cause cancer at any level should be banned from products, it is important to note that we have the ability to detect things at much finer levels than the past. This rule was ignored for a long time, then amended in 1996 to allow individual agencies to set levels at acceptable levels of risk.
- Are dioxins toxic? Yes very. Does exposure create health risks? yes many. Do exposure variables affect these rates? Yes. Are dioxin levels reducing over time and human body burdens reducing over time? Yes to both. So why are we still concerned? Because we don't know the safe levels. This is true of many compounds that take years and decades. It is likely we will continue to regulate and adjust our thinking about what is safe over time.
- Regulatory costs in the US are enormous, 1.75 trillion dollars. While health care costs are 2.7 trillion dollars.
- CAG Question: What evidence is available to show dioxin causes cancer? There is a growing body of evidence to support that, hundreds of studies have been done. It is very difficult to associate one particular chemical with one particular cancer because of the long latency periods associated with cancer and because we are all exposed to so many carcinogens in the environment even if you are trying to eat natural and organic products. Here in the Saginaw Valley, the effort to try to tie a specific death to dioxin is without merit.
- CAG Question: wouldn't the public be better served by better education than by dropping the standard lower? We have to look at the role of various agencies and relative source contribution, there are dioxins everywhere. Food is the prevalent source of dioxin presently.

6. Public Comment

- Expressed gratitude for all the information and speakers, sometimes it seems we are making progress while stepping backward at the same time.
- The Legislature is looking to deregulate beach grooming, did the office of Great Lakes weigh in on this issue, seems like a real threat to beaches? Did not weigh in officially, that would be the water resource division within DEQ.

The Meeting was adjourned at 8:50 PM.