

**Saginaw Tittabawassee Rivers Contamination CAG  
DRAFT Summary of Full CAG Meeting  
Saginaw Valley State University – Curtiss Hall  
Monday, June 20, 2011**

**CAG Members Present**

Drummond Black  
Charles Curtiss  
Matthew de Huis  
Leonard Heinzman  
Deborah Huntley  
Ryan Jankoska  
Wendy Kanar  
Michael Kelly  
Rachel Larimore  
Judith Lincoln  
David Meyer  
Laura Ogar  
Annette Rummel  
Joel Tanner  
Paul Vasold  
Bob Weise

**CAG Members Absent**

Jeffrey Bulls  
Michael Espinoza  
Janet McGuire  
William Webber

**Ex-Officio Members Present**

Joe Haas, US FWS  
Todd Konechne, Dow Chemical  
Mary Logan, US EPA  
Al Taylor, Michigan DEQ

**Support and Agency Staff Present**

Don de Blasio, US EPA  
Jeff Cohn, USEPA Attorney  
Susan Hedman, USEPA Region 5 Administrator  
Cheryl Howe, Michigan DEQ  
Rick Karl, USEPA Superfund Director  
Diane Russell, US EPA  
Doug Sarno, Facilitator  
Jim Sygo, Michigan DEQ

Doug Sarno called the meeting to order at 6:05 PM. Agenda items Included:

- Leadership Update
- Tittabawassee River Wildlife Project
- Update on Cleanup Decisions
- Conversation with Senior Agency Personnel

## **1. Leadership Update and Planning for Dioxin Presentations**

- Incorporation is proceeding and the CAG will be establishing a bank account soon.
- Dr. Garabrant from the University of Michigan was invited to speak at the July meeting. The leadership team proposed moving this presentation to September to allow July and August to focus on Segment 1. All agreed that this was a good idea.

## **2. Tittabawassee River Wildlife Studies**

Professor Matthew Zwiernik from Michigan State University presented the results of these studies.

Background on the studies:

- From the fall of 2004 through the fall 2008, 14 different studies were performed to study the possible impacts of dioxin-like contaminants on resident wildlife of the Tittabawassee River basin. Both avian and mammalian studies in the lab and in the field were conducted. This work expanded on the MDEQ screening level project to look at actual impacts and not just modeling.
- A total of 40,000 hours of work was performed on the River with five PhDs from around the world and five graduate students. Several dissertations and theses have been written about the study.
- The team worked cooperatively with 60 landowners, the Chippewa Nature Center, Shiawassee National Wildlife Refuge, USFWS, Environment Canada, and Dow.
- The site-specific project looked at multiple species from multiple lines of evidence. It looked at animals at top of the food chain subject to highest exposure of concentrations, included song birds (bluebirds, house wren) to target specific geographic areas, fish eating birds (kingfisher), raptors (great horned owl), migratory waterfowl (woodchuck), and mink.
- Lines of evidence included dietary exposure assessment, tissue based exposure assessment, individual and population health measurements. Were able to understand diets of site-specific animals to a very high degree to understand exposure to what they were eating through direct measurement, stomach content, and scat analysis.

- Took direct measures of individual health such as size, abundance and demographics and compared to reference areas at Chippewa nature center. Also took tissue samples directly to understand exposure.

#### Results of the studies on Mink:

- Saw bioaccumulation in food sources significantly above reference locations. Dioxin equivalents in wild Mink Liver 270 TEQs vs. less than 10 at reference sites
- In order to understand whether these are levels of concern, looked to existing literature and health of the actual populations vs. reference populations.
- The Tittabawassee had the worst habitat of the three different areas studied but had the middle number of mink abundance.
- Sampled 50 mink on a wide range of criteria. Looked at male/female ratios, as measure of reproductive success- low male/female ratio is bad sign, also looked at age distribution. Looked at individual health- body length, weight, sex, age, liver weight, brain weight, nutritional status, reproductive structures, histology of liver, brain, kidney and jaw. Jaw lesion was one important factor explored and no evidence was found.
- Saw no difference in weight, length, age, organ weights, nutritional status, histology, abundance, age distribution, male/female ratio, and placental scarring in mink on the Tittabawassee from reference sites.
- While the exposure was high enough to be of concern, the mink were healthy and abundant, and lightly harvested. The main reason for this is that the 2,3,7,8 TCDF form of dioxin present was much less hazardous than expected. 2,3,7,8 TCDF quickly degrades in the mink and does not bioaccumulate, and has only an 8 hour half life in the mink, so most of it is gone from the animal within 24 hours.
- Looked at reproductive effects, mink in the lab exposed at 4 times level in the field were not affected.
- Laboratory results matched field diet to tissue ratio and all lines of evidence were in agreement.

#### Results of the studies on Kingfisher:

- The Belted Kingfisher eats lots of fish and forage in a relatively small area so they would show very site-specific information. They also burrow into the riverbank where they live and raise young so receive some of the highest concentrations and would expect the highest impacts.
- Built direct access to the nests and put in cameras and could study eggs and young birds. Young birds were banded and weighed every three days. Also banded and radio-tagged adults
- Kingfisher furan exposure is significantly greater downstream of Midland. Dioxin-like exposure is 70% furans.
- Overall the population was healthy and not different from reference.

#### Results of the studies on Great Horned Owls:

- Great horned owls don't build own nests so were able to make artificial nests for the study. Nestlings spend whole life in those nests so were able to understand total exposure and diet.

- Also trapped adults to get blood samples and take measurements, used banding and radio tracking.
- Exposure is significantly greater downstream of Midland.
- Dioxin exposure is mostly furans in the diet.
- Population was healthy and did not differ from reference sites.

Results of avian studies:

- Results show that dibenzofurans are entering the food web.
- Looked at a total of 6000 birds.
- If wild birds are as sensitive as chickens then egg concentrations are approaching levels of concern. Found a wide range of sensitivity among different species, linked to a genetic sequence. Tested sensitivity of species and their sensitivity to different classes of dioxins. Sampled 64 avian species—2 were found to be most sensitive, 32 were moderately sensitive, and 30 were least sensitive. Species studied in this project were moderately and least sensitive. The most potent of furan types were not the same for each species.
- Long-term passerine monitoring. A five-year study banded more than 5000 resident birds to follow their survival (bluebird, tree swallow, house wren).
- Showed survival rates as high as 85%.
- No difference in survival rates between study and reference areas.
- Survival rates similar or greater to rates reported in literature.
- All species that should be present are present.

Overall conclusions:

- Contaminants of concern are entering food web and wildlife is being exposed at high levels.
- Unable to identify with any certainty any furan-associated effects on wildlife.
- TCDF appears to be much less toxic than predicted in mammals, but PeCDF appears to be more toxic.

CAG Questions:

- Who designed the study approach? Team of scientists at MSU, plus some scientists from Canada.
- What literature reviews were conducted, and where does this study rank in terms of size of data? This is the most comprehensive study of this type that has ever been done.
- How widely has this study been presented? Over one hundred different presentations at conferences, all raw data is available.
- Associated research was looking at Sturgeon and it was noted that you had to be careful collecting Sturgeon, because it might be more tolerant than populations brought from the outside, is it possible that some of these species are more tolerant than those from the control areas or has dioxin not been present long enough to make those mutations? Possible but not likely, existing genetic sensitivity is really the more important factor. USFWS noted that selection pressures are much more likely in fish populations.

- One message is that once ingested the half-life for one of the compounds was very short, how is it gone so quickly? This is only true in these certain animals with those enzymes.
- Won't fish transport the more potent furans? It was close to those concentrations but below what would cause jaw lesions.
- What about muskrat? These were sampled as food for the mink and found the levels to be quite low. Muskrat eat mostly cattail.
- Can we make any correlations to people or was this just for animals? This was representative or worst case-scenarios for the natural ecosystem, was not for humans. Risk acceptance for ecology is much different than for humans.
- How were you able to study great horned owls? The adults are not friendly and can be very aggressive so need to be very careful. Nestlings when young are less aggressive.
- Did you think you were going to find some adverse affects? Yes.
- When was this study completed? 2009.
- Has the study been subject to peer review? Yes, 120 presentations at scientific conferences and over 20 papers subject to peer review. Not all data has been presented, but it is all available.
- How have these studies been received? We have gotten very positive response at all events.

Public questions:

- More information on jaw lesions? We have seen them on other rivers and they correspond well to exposure to PCB 126. It does advance over time, juveniles can express it as soon as six weeks. Once it starts it is not reversible. First observed in Saginaw River study, as teeth can fall out.
- How long do minks live? About 2.5 years, though can extend up to 5 or 7 years.
- How old were the minks in lab? 2 years.
- Shouldn't they have been younger to see affects? Would still who affects.
- Lots of studies have happened, letter to editor by Dr. Mangino of EPA says there is no evidence that wildlife is flourishing and he never saw a workplan for this study? This was early on and we did produce a workplan and put it out for comment. Also as part of 2010 agreement between EPA and Dow there will be an ecological workplan produced.

### **3. Cleanup Activities Update**

Mary Logan from USEPA reported that they are working on three critical pieces of the cleanup.

1. In January, EPA proposed criteria and three options for exposure at high use properties; these are short-term measures to protect people while long-term cleanup proceeds. In May, EPA established the criteria for how they will move forward. Considered many comments, and the response to comments is on the web. The CAG recommended working with individuals in terms of how to deal with properties, and we are doing this on a property-by-property basis so that

people can be involved in solutions on their property. A number of public asked for relocation to be provided, EPA has determined that this site does not meet conditions for relocation. Another key comment was the desire for permanence in areas, but these actions will remain interim because of the potential for recontamination.

2. Early action on Island MM. The public comment period is closed and EPA is evaluating the comments.
3. Segment 1 options will be presented for discussion this summer, Dioxin is not the driving contamination on this portion of the river, and EPA is looking at 6 key contaminants. Options will be out for public comment shortly. It is a very complex project and we will begin our discussion of these options with the CAG in July.

#### **4. Senior Agency Officials Discussion**

Susan Hedman, Region 5 Regional Administrator, Rick Karl, EPA Superfund Division Director, and Jim Sygo, Michigan DEQ Deputy Director were all in attendance and took the opportunity to talk with the CAG.

Susan Hedman stressed the importance that we make cleanup progress, and that EPA keep a close working relationship with MDEQ. Administrator Jackson committed to a public involvement process beyond what is required by law. EPA is conducting public outreach beyond the CAG, and has opened a field office in Saginaw. EPA wants to work with the community formally and informally, and is particularly grateful to the effort given by those involved in the CAG process. In making cleanup decisions, ultimately it is EPA, MDEQ and public who make and inform the decision. Dow's job is to implement the decisions, so our job is to make sound decisions based on good science and public values.

Jim Sygo noted it is rare for the state to sign on to a CERCLA order, and this shows that the site is a priority for the state. He believes this CERCLA cleanup will help to enhance and move forward the RCRA process. MDEQ is a partner in this process.

Questions and comments from the CAG:

- Does the public have an equal footing with EPA and MDEQ? The agencies are beholden to the public and must listen to the public and make sure that those community values are factored into what we decide
- How would you characterize what is happening here in comparison to other Superfund sites? River sites like Fox River, Kalamazoo River, all three are similar in that we are looking at interim actions and a long-term solution at the same time as well as take care of highly erodible areas that can benefit from near term actions.
- The Fox River seems similar to here, how much involvement do Green Bay stakeholders have in the Fox River cleanup? The Bay is an operable unit of the project, there has been an assessment and some cleanup and studies to determine if any additional actions are needed. So far looks like Green Bay will

not require much additional remediation. In Saginaw Bay we don't have the data yet to know what will be needed.

- Does anyone actually pay attention to the CAG input, what happens to our recommendations? Rick Karl talks with his staff every week, the information comes back and we think about all of the input that comes from the CAG. You are the eyes and ears of the community, and your input is extremely valuable.
- This process has been going on for a while, how does this compare to other sites of this size? Since it has been turned over to the Superfund program in the past few years we have seen significant progress, we are looking for a final remedy that is final, these are complex decisions and we want to make sure that we are doing the right thing.
- A small amount of the river is highly erodible, are there plans to address areas in addition to Island MM? Some of this has already happened at Reach JK, Reach M, and Reach O. We are continuing to look at the banks that are eroding, but erosion by itself is not the problem, it is erosion where there are higher levels of contamination. Those assessments are ongoing and we will take action as needed.
- Why is OMB involved in delaying the dioxin study, as it is a scientific report that affects so many people? OMB reviews all reports of this nature. The review of this report is taking longer than usual.
- Some of us feel that we need more study, others feel that this has been studied to death and feel that we are on the right path. Many of us in the community believe that the approach to cleanup should be risk based and cost-effective, and we appreciate your efforts.

Public comment:

- We have property on the river, they took bunch of samples some of them were very high, but nothing has happened and we never hear anything about what is happening. We just don't know what the process is, or whether I can let my kids go down there or not? EPA will get directly back with you to talk about what is happening next, and staff will meet with you after the meeting.
- We got about a foot of new soil on the banks this spring and I have a 12 year old, he is a scout, we were advised not to use that land, but we have not heard anything since. Can't EPA tell him based on the levels on the property whether they can use the property? Unfortunately, EPA can't say just based on one sample, we need to know where it is and how people come into contact. We have a guidance under examination for general residential exposure. People with questions should contact the Saginaw Office directly and they will help find the answers that people need.
- Cant we have a email list or something that goes to people with information like this? There a listserve now and folks can sign on at the PEA web site or give us your email now. We are also working to develop a FAQ section of the web site.
- Susan Hedman committed to the community to create a regular newsletter starting this summer. EPA is putting in place a comprehensive plan, this will help everyone understand the general direction and answers to key questions.

- The Michigan Department of Environmental health issues advisory suggestions, shouldn't they be part of the information that is handed out here, including inhalation as an exposure route? We are still using them and have given them to the CAG as part of a full packet of information, we provide them to homeowners and will have some at future CAG meetings as well. In the latest studies inhalation was seen as such a very minor part of exposure compared to direct contact and ingestion.
- Why aren't we using sediment traps to stop this contamination now and not wait until Task 2? Sediment traps are still being actively considered.

The Meeting was adjourned at 8:58 PM.