



Proposed Settlement for Superfund Cleanup Process

Tittabawassee River, Saginaw River & Bay Contamination Site
Midland/Saginaw/Bay City Region, Michigan October 2009

For more information

You can view documents related to the Tittabawassee River, Saginaw River & Bay Contamination site in information repositories set up by EPA and MDEQ. The repositories are located in the Grace A. Dow Memorial Library, 1710 W. Saint Andrews St., Midland; the Hoyt Main Library, 505 Janes Ave., Saginaw; and the Alice and Jack Wirt Public Library, 500 Center Ave., Bay City.

Information office

EPA has opened a community information office in the Saginaw County Courthouse, 111 S. Michigan Ave., Saginaw. Or call 989-790-5215.

On the Web

EPA dioxin investigation:
<http://www.epa.gov/region5/sites/dowchemical>

Michigan dioxin information:
<http://www.michigan.gov/deqdioxin>

Sign up for the listserv

If you would like to be e-mailed site updates, send a blank message to: dow_dioxin-subscribe@lists.epa.gov

Contacts

These EPA community involvement coordinators can answer questions:

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krause.patricia@epa.gov

Don de Blasio
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Region 5 toll free:
800-621-8431, 9:30 a.m. – 5:30 p.m., weekdays

At MDEQ contact:

Cheryl Howe
517-373-9881
howec@michigan.gov

Since June 2009, EPA and Michigan DEQ have been negotiating with The Dow Chemical Co. the terms of how to proceed with a Superfund evaluation of the Tittabawassee River, Saginaw River, Saginaw Bay and their floodplains. This process would ultimately lead to a comprehensive cleanup of dioxin contamination originating at Dow's Midland plant.

In late September, the negotiators agreed on a proposed settlement, contained in a legal document called an "administrative order on consent," or AOC. EPA and MDEQ will use the established Superfund processes and Dow will be required to meet the same obligations as at any Superfund site. EPA follows an established step-by-step process to determine the best way to clean up a Superfund site. EPA prefers that the companies considered responsible for the contamination (the potentially responsible party, or PRP) clean up a site. EPA ensures this by negotiating binding and enforceable settlement agreements with the PRP. Under the proposed agreement, Dow would conduct the following work:

Remedial Investigation and Feasibility Study

The RI/FS phase of the process determines the nature and extent of contamination at the site, develops cleanup options—such as dredging, capping, etc.—for addressing the contamination, and evaluates and compares the performance and costs of the various cleanup options.

Remedial Design

The RD phase of the process includes preparing for the cleanup at the site. It is during this phase that the engineering plans are developed for implementing the cleanup option EPA selected.

In addition to the AOC, the parties negotiated a "statement of work" that details the specific tasks that the company will perform. Each of these documents is about 75 pages long and is available on EPA's Web site (see box to the left). This fact sheet highlights some of the key provisions.

Public review and comment

Dow has signed the AOC and will be bound by its terms once it is signed by EPA and MDEQ. But, EPA and MDEQ have not signed the AOC—and will not sign it until after a thorough review by the public. Only then, after considering the comments received from the public, will EPA and MDEQ decide if they will sign the AOC as currently written. Alternatively, EPA and MDEQ may elect to reopen negotiations to address significant public concerns.

A 30-day public comment period will begin Oct. 19, 2009, for the community to review and comment on the proposed settlement. On Nov. 5, 2009, there will be a public meeting where people can learn more about the settlement, ask questions and make oral comments. Comments can also be made in writing (see the box on P. 5 for detailed information about how to comment).

The agencies realize that the proposed settlement is a complex technical and legal document. This fact sheet is one effort to explain the agreement in plain language and the Nov. 5 meeting will be an opportunity to get

questions answered. In addition, EPA has agreed to provide independent 3rd-party technical assistance to the community to review the proposed settlement. This assistance is provided by EPA's Technical Assistance Services for Communities program (see <http://epa.gov/superfund/community/tasc/> for more information) through The Lone Tree Council and Tittabawassee River Watch.

Highlights of the proposed settlement

The work that Dow will be required to complete

The technical activities to be carried out under the proposed settlement cover the Tittabawassee River (from just upstream of Dow's Midland plant), Saginaw River and Saginaw Bay. (See section IV of the proposed AOC for the definition of the site.) The technical activities outlined in the statement of work will help EPA and MDEQ achieve their goal of a comprehensive cleanup built upon existing information and the work already completed or under way. More information on EPA and

MDEQ expectations with respect to technical activities is in section I of the statement of work.

The technical activities for this site fall into three critical categories:

- Continuing to address high-use properties along the rivers
- Addressing erosion and movement of highly contaminated soil and sediment
- Identifying comprehensive cleanup options in an upstream-to-downstream fashion

Figure 1 shows an approximate timeline of how work would proceed.

High-use properties

Activities required to address "high-use" properties along the rivers include gathering and assessing data, developing options to reduce exposures and designing the mitigation measures selected by EPA after an open and transparent public participation process. These activities would begin right away under the proposed settlement and would build on work that is already

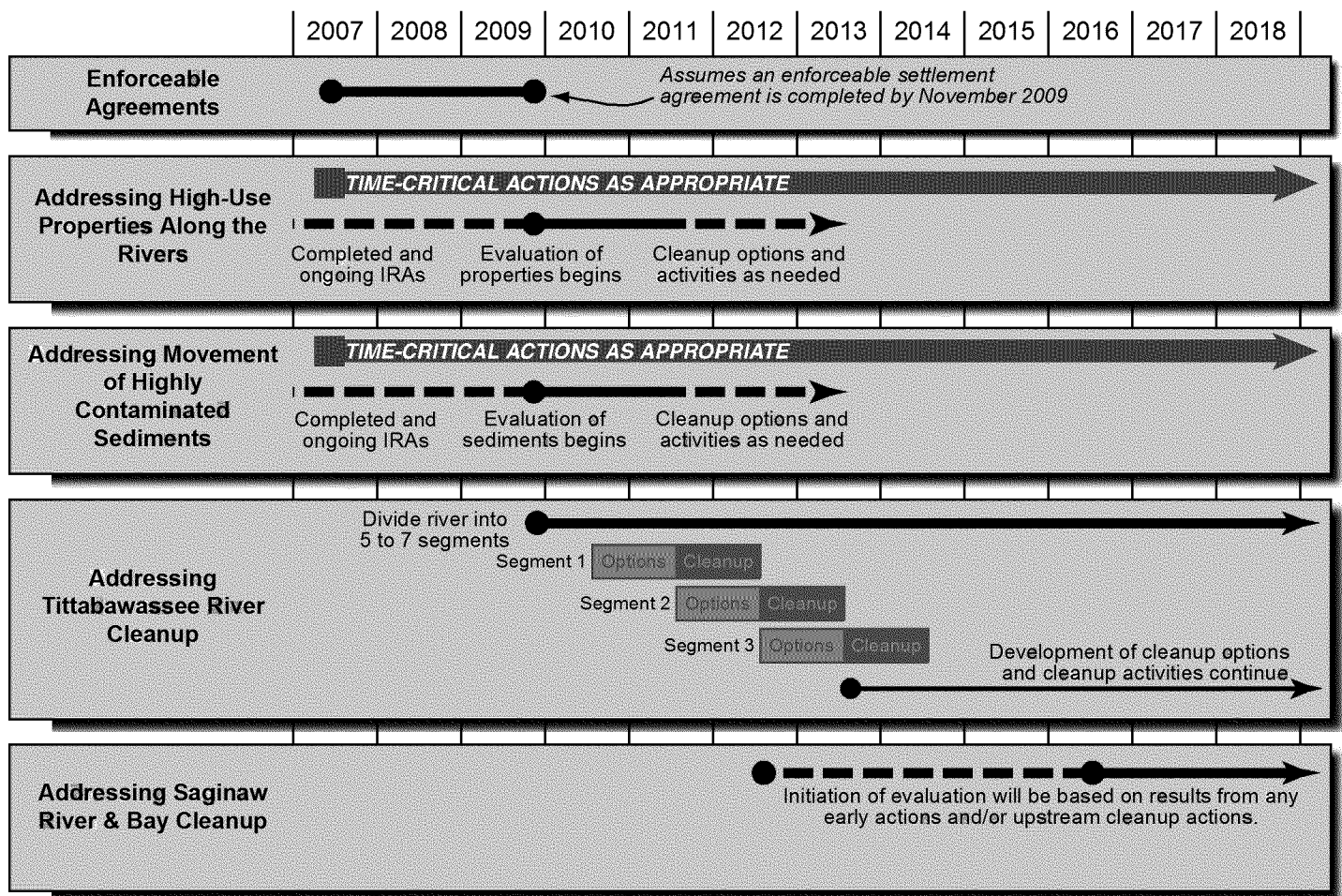


Figure 1. The proposed timeline for the cleanup.

under way. See task 1 in the statement of work for a full detailed description of these activities and exhibit B of the statement of work for the schedule.

Contaminated soil and sediment

Activities required to address movement of highly contaminated bank soil and sediments include gathering and assessing data, developing options to reduce movement of highly contaminated banks and sediments, and designing the mitigation measures selected by EPA after an open and transparent public participation process. These activities would begin right away under the proposed settlement and would build on work that is already under way. See task 2 in the statement of work for a full detailed description of these activities and exhibit B of the statement of work for the schedule.

Comprehensive Cleanup

A number of activities outlined in the proposed settlement provide the framework for developing comprehensive cleanup options in an upstream-to-downstream fashion for the Tittabawassee River, Saginaw River and Saginaw Bay.

The first of these activities is dividing the river systems and bay into manageable pieces. The plan is to separate the site into two pieces called operable units (OU1 and OU2). The first operable unit would include the Tittabawassee River and the Upper Saginaw River including the 6th Street turning basin. The second operable unit would be the Lower Saginaw River and Saginaw Bay. Each operable unit may then be further divided into smaller pieces called segments. The first segment of the Tittabawassee River has already been defined in the proposed settlement. For more detailed information on how site work is being organized see section IV, task 7.1 and task 12.2 of the statement of work.

For OU1, the operable unit that includes the Tittabawassee River and Upper Saginaw River, the primary activities include assessing existing data and gathering additional data as necessary, developing segment-specific cleanup options and designing the option selected by EPA after an open and transparent public participation process, and evaluating the risk remaining after cleanups have been implemented. Activities in this operable unit will build upon the data, investigations, cleanups and other work that have already been completed or are currently under way. The activities for this operable unit would begin right away under the proposed settlement and the first set of segment-specific cleanup options would likely be available to the public within 15-18 months. For more detailed information on the activities required for the first operable unit see tasks 8, 9 and 10 of the statement of work.

How to comment

EPA will receive all comments and share them with MDEQ. There are several different ways to submit comments on the proposed settlement:

- Orally, at the Nov. 5 public meeting
- On the Web, at www.epa.gov/region5/publiccomment/
- Fax to 312-697-2568
- E-mail to krause.patricia@epa.gov
- Mail to: Patricia Krause
Superfund Division (SI-7J)
U.S. EPA Region 5
77 W. Jackson Blvd.
Chicago, IL 60604

All comments must be postmarked or submitted by midnight Nov. 17.

For OU2, the operable unit that includes the Lower Saginaw River and Saginaw Bay, the primary activities include gathering and assessing data, evaluating risk, developing cleanup options and designing the option selected by EPA after an open and transparent public participation process. Since it is expected that conditions will change in the Saginaw River and Bay as a result of cleanup activities completed upstream, the activities for this operable unit would not begin right away (other than addressing high-use properties and contaminated banks and sediment, as described above). For more detailed information on the activities required for the second operable unit see tasks 11, 12, 13, 14, 15, 16 and 17 of the statement of work.

How the Superfund process will be used to meet Dow's investigation and clean-up obligations under its RCRA license

Many of the activities to be completed under the proposed settlement are expected to fulfill requirements under the RCRA license that was issued to Dow by MDEQ. (RCRA is the Resource Conservation and Recovery Act, the federal law that regulates the identification, transportation, treatment, storage, and disposal of solid and hazardous wastes.) As a part of the proposed settlement, MDEQ, working as a partner with EPA, will review the activities being completed in "real-time" to ensure that the requirements of the license are met. If necessary, MDEQ can require additional work beyond that identified in the AOC to meet the license requirements. As part of the AOC, MDEQ would propose a modification to the license to clarify how the license and the proposed AOC will work together. This modification will go through the state's usual public comment and review procedures. More details on MDEQ review and the proposed license

modification can be found in section XI and appendix E of the proposed AOC, respectively.

Appendix H of the proposed AOC is a “crosswalk” that describes how work under the AOC corresponds to the requirements of the license. For example, the requirement for Dow to submit a remedial investigation work plan for the Saginaw River, floodplains and bay are addressed under statement of work tasks 11 and 12.

EPA and MDEQ also needed to ensure that activities already started under the license do not stop and remain under an enforceable agreement until that activity is fully transitioned into the Superfund process. Exhibit A of the statement of work is a chart that describes ongoing license activities and how those activities will transition into the proposed AOC. For example, flood response activities for “priority 1 and 2” properties and parks along the Tittabawassee River will continue under the license until these activities are covered by an enforceable agreement under the Superfund program.

There are defined processes for resolving disputes in the order

The proposed settlement provides three distinct dispute resolution processes. These are the processes that EPA, MDEQ and Dow would use to resolve any disagreements under the settlement. The processes are designed to achieve quick resolution of disagreements so activities can continue without significant delay. Depending on the type of disagreement, EPA or MDEQ has primary responsibility to decide how to resolve disagreements. For further details on the dispute resolution processes see sections XVI, XVII and XX of the proposed AOC.

Dow can be required to pay monetary fines

If EPA determines that Dow is not following the terms of the proposed settlement, the Agency can require the company to pay monetary penalties ranging from \$500 to \$2,500 per day. Also, EPA can require Dow to pay a \$600,000 penalty if the Agency needs to take over any of the work. Further details on penalties can be found in section XVIII of the proposed AOC.

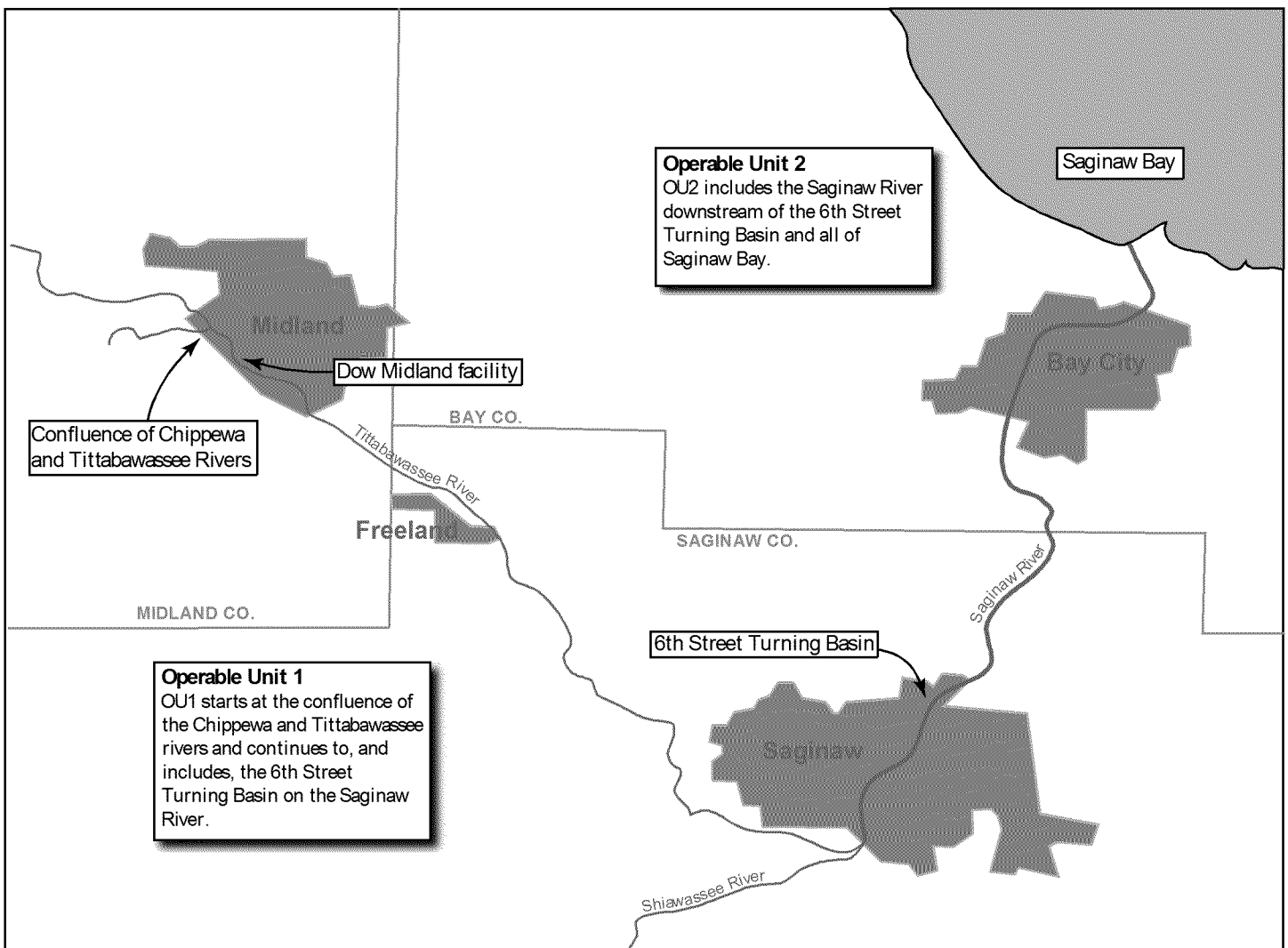


Figure 2: This map shows the site and the proposed operable units.

Detach this page, fold on dashed lines, staple, stamp and mail

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Community Involvement Coordinator
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Chicago, IL 60604**

EPA and MDEQ will be reimbursed for costs

Both EPA and MDEQ will be reimbursed for their costs to oversee activities at the site. The agencies will receive an initial sum of money to be used during the first year of the project. After the first year, EPA and MDEQ will bill Dow for their costs. Both EPA and MDEQ have agreed to seek recovery for their past costs at a future date. For further detail on the way EPA and MDEQ will be reimbursed for overseeing the project, see section XX of the proposed AOC.

EPA, MDEQ and Dow will retain certain legal rights under the order

EPA and MDEQ will give to Dow certain “covenants not to sue,” which are basically agreements not to sue the other party under certain circumstances. These covenants are only for the activities completed by Dow under the AOC and are contingent upon Dow complying with the requirements of the AOC. The proposed settlement also outlines the conditions under which EPA and MDEQ will be able to pursue or sue Dow. These are known as “reservations of rights.” Because such things as a final remedy and past costs are not a part of this AOC, EPA and MDEQ are not giving Dow a covenant for these matters and are reserving their rights. Additionally, MDEQ is reserving its rights under the RCRA license. Similarly, Dow will give to EPA and MDEQ certain covenants and will reserve certain rights in the proposed settlement. The detailed covenants and reservations of rights are outlined in sections XXI, XXII, XXIII, XIV, XXV and XXVI of the proposed AOC.

The community will be able to obtain technical assistance

The proposed settlement provides funding for the community to obtain technical assistance. A \$50,000 fund will be set up to hire an independent technical advisor to help interpret and comment on documents developed under the proposed settlement. The community will also be able to apply for additional funding once the initial \$50,000 is almost spent. Details on technical assistance funding can be found in task 3 of the statement of work.

The Natural Resource Trustees will be engaged

In Superfund, responsibility for protection of natural resources falls with federal, tribal and state trustees. This is because no one individual “owns” a natural resource; rather, they are held in trust for the public. The Natural Resource Trustees will have opportunities to review and comment on plans, reports and other documents submitted under the proposed settlement. In addition, the proposed settlement does not change the Trustees’

Comparing EPA’s initial offer to the proposed settlement

People comparing EPA’s initial settlement offer to Dow to the proposed settlement that was negotiated between the parties will notice how a number of important topics were handled. Some things did not change from EPA’s initial settlement offer. Some topics were not in the initial offer and are not in the proposed settlement because they will be considered later, as part of an open and transparent public process.

These are items that did not change from EPA’s initial settlement offer:

- The geographic extent of the site (Dow will investigate wherever contamination from the Dow Midland plant has come to be located)
- The scope of the work (the AOC must cover remedial investigation, feasibility studies and remedial design)
- Public comment on the AOC prior to signature by the Agencies
- EPA’s right to list the site on the NPL if it chooses to do so
- The evaluation of contamination on high-use properties along the rivers
- The evaluation of the movement of highly contaminated sediments
- A CERCLA order will not terminate Dow’s RCRA corrective action obligations

These items were not in the initial offer and are not in the proposed settlement:

- Cleanup options, including sediment disposal locations, cleanup technologies such as dredging, capping, etc., and relocation
- Cleanup levels

These items will be considered later in an open and transparent public process.

ability to continue their assessment of natural resource damages or to hold Dow accountable for any damages. Sections V and XXV of the proposed AOC have the details regarding the Natural Resource Trustees.


You're invited to a meeting about ...

EPA's Proposed Settlement For The Tittabawassee River And Saginaw River And Bay Cleanup

**7 p.m. Thursday, Nov. 5, 2009
Saginaw Valley State University**

EPA will present details about the proposed settlement negotiated with The Dow Chemical Co. The proposed settlement lays out a process for evaluating dioxin contamination in the Tittabawassee River, Saginaw River, Saginaw Bay and their floodplains.

A question-and-answer session will follow the presentation and then attendees will be able to make oral comments. **The meeting will be at Saginaw Valley State University, Curtiss Hall, Banquet Rooms A&B, 7400 Bay Road, Saginaw.**

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Proposed Settlement for Superfund Cleanup Process

United States
Environmental Protection
Agency
Region 5
Superfund Division (SI-7J)
77 W. Jackson Blvd.
Chicago, IL 60604-3590



Tittabawassee Dioxin Matter Chronology

The following is a brief chronology of what had been a long time controversial matter in Midland, Michigan, the corporate hometown of The Dow Chemical Company (headquarters and first manufacturing site).

- 1898 - Herbert Dow begins Dow by using the naturally briny groundwater in the Midland area to manufacture chlorine. Dow's process generates as a waste microscopic pieces of graphitic carbon (from electric anodes) impregnated with chlorinated furans, which are chemically related to dioxin and frequently referenced generically as dioxin. Liquid waste from the chlorine cells, which contained these particles were directly discharged to the Tittabawassee River. This River flows just over 20 miles to the Saginaw River that flows another 20 miles to Saginaw Bay
- The furan laden particles are in the sediments and most became incorporated into the river banks of the Tittabawassee
- About 1920 – Ponds are built on the Midland manufacturing site and so some settling of solid materials (i.e. the furan particles) occur before wastewater is discharged
- Organic chemical wastes and other burnable materials are burned onsite. This incineration of materials at comparatively low temperature and destruction efficiency in comparison to the state of the art incinerators that began to operate in 1980, generated dioxin as an air emission. Dioxin settled on the surface soil of the chemical plant in the vicinity of the chemical plant in the City of Midland.
- Late 1970s onward – Dioxin was a national controversy and a particular one for Dow and Midland. Agent Orange and other herbicides manufactured by Dow contained trace quantities of dioxin and generated dioxin in wastewater. A 1978 Dow study reported a link between dioxin and cancer in rats. Elevated levels of dioxin were found in limited soil sampling in Midland. The prevailing attitude in City of Midland was that there was no problem, but State and Federal regulators did not agree.
- Early 1980s – EPA's funding of an evaluation of the Tittabawassee River and floodplain showed low levels of dioxin (at this time furans were not also analyzed along with dioxin)
- 1998 or 1999 – MDEQ testing of the Tittabawassee River and floodplain shows elevated levels of furans
- Late 2002 – Dow and the State of Michigan were negotiating a dioxin clean up number for the City of Midland to be put into a consent decree in advance of MDEQ's issuance of an updated RCRA permit (with corrective action conditions). The consent decree was opposed by the Attorney General of Michigan, Jennifer Granholm, who was elected Governor in November. The consent decree was withdrawn in December.
- March, 2003 – I was brought on fulltime to a high level team to work on the Midland dioxin matter (I was not involved in the prior activity, at the time of the failed negotiations, I was doing a two year stint as a business lawyer for Dow). The draft RCRA permit issued this month included corrective action requirements for the City of Midland and the Tittabawassee and Saginaw River and Bay.
- 2003 – 2005 – During this time there was considerable public attention on the dioxin matter and engagement by the Governor. Dow and the State agreed to document called the Framework for Agreement (January 20, 2005) which set forth a path addressing the River and then the City under RCRA corrective action. Dow implemented some interim remedial measures at public

parks along the River and in the City of Midland and at hundreds of homes in 2005, 2006 and 2007.

- 2005 – 2009 – The comprehensive sampling of the Tittabawassee River commences under RCRA. EPA was engaged through its RCRA program in an oversight role
- 2006 – EPA’s David Batson initiates an Alternative Dispute Resolution process that addresses both the remediation issues and natural resource damages.
- 2007 – MDEQ and Dow begin to develop some interim remedial measures for the Tittabawassee River
- 2007 – Summer – EPA Region 5 Administrator requires Dow to enter into 4 time critical removal orders under CERCLA 106 instead of proceeding with MDEQ’s interim actions under RCRA
- 2007 – Fall – EPA Region 5 and Dow begin negotiation of a Consent Agreement follow a Special Notice letter lead by Acting Superfund Director Ralph Dolhopf (who formerly was an On scene coordinator under appointed to this role by Mary Gade)
- 2007 – Late Fall - Early 2008 – The difficult negotiations fail to reach agreement and are terminated by EPA (see the correspondence)
- 2008 – On February 26, 2008, a very strange meeting was held at EPA with Susan Bodine, AA for OSWER, Grant Nakayama, AA for OECA, many senior executive staff members, Mary Gade, Steve Chester (MDEQ Director) and a senior Dow executive, the Dow Global Director of Remediation and myself. At this meeting Dow is informed that MDEQ will continue to have the lead for corrective action (Mary Gade’s request). Mary Gade is very rude to her colleagues.
- May, 2008 – Mary Gade resigns (claims she was fired because of Dow)
- Summer, 2008 – Lynn Buhl appointed Regional Administrator. EPA and MDEQ meet with Dow and propose to restart negotiations with Dow on a CERCLA Consent Order under which EPA, Michigan and Dow would be parties under the Superfund Alternative Site process. Frank Lyon was engaged by Dow to assist in the negotiations.
- 2005 – 2009 (or so) – Dow provided financial support to Saginaw County (the Saginaw County River Alliance, barge shipment companies also provided support) in the develop of a dredged material disposal facility (DMDF) in Zilwaukee Township to receive dredged sediment generated by the Army Corps navigation dredging of the upper Saginaw River. The DMDF was subject to a federal and a state court lawsuit and Dow’s outside counsel supported the U.S. Attorney’s office in the successful defense of the NEPA suit in federal court.
- Early 2009 – The incoming EPA Administration halts the CERCLA AOC negotiations that were being lead by Region 5 career staff.
- Spring 2009 – Deputy Administrator Bob Sussman, Mathy Stanislaus and other high ranking officials come to Mid-Michigan (Saginaw) to hold meetings with local activists (the Lone Tree Council), Dow and community leaders
- May, 2009 – Lisa Jackson issues a letter reporting that the Dioxin Reassessment would start back up and that the negotiations with Dow for the Tittabawassee would resume
- Balance of 2009 – Negotiations on a Consent Agreement resume and are completed.
- January, 2010 – Consent Agreement signed for a RI/FS for the Tittabawassee and Saginaw Rivers and Bay. The Tittabawassee River will be addressed in 8 segments moving from upstream to downstream. The Saginaw River and Bay are a second operable unit.
- Since signing in 2010 – Dow and EPA have entered into additional AOCs (14 AOCs in all since 2007 – listed separately) to either address the remedy for a particular river segment, the

floodplain for the entire river or a couple of interim projects.

- March, 2012 – Negotiations with the MDEQ lead to the development of dioxin cleanup numbers (residential and commercial/industrial) and an approved plan in June, 2012 for City of Midland.
- 2012 – 2014 – Sampling and remediation in the city of Midland occurred during a three year period and 132 residential properties that had results above the residential criteria had remediation completed years ahead of the schedule in 2012.