



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 5  
9311 GROH ROAD  
GROSSE ILE, MI 48138

Dear [*insert resident name*],

As a follow up to the baseline sampling Dow and AKT Peerless conducted in the Riverside Boulevard neighborhood, I wanted to share that data with you and also provide you with a copy of the post-removal monitoring plan that Dow agreed to undertake.

Attached to this letter is a data table with both Dow's data for the samples collected and also split sample data that MDEQ analyzed for U.S. EPA. The post-removal monitoring plan (PRMP) is also attached for your records.

To simply summarize the PRMP, Dow has agreed to collect a baseline of the existing dioxin TEQ in the soils in the neighborhood (which they have done) and then to sample again after each of the next 3 flood events. After Dow samples the next 3 flood events, the data will be reviewed to determine if the sampling frequency can be adjusted to once a year in the fall. This will require agreement between the oversight agency and the Dow representative.

In addition to the sampling Dow is performing through the PRMP, MDEQ and/or U.S. EPA is planning to collect samples to allow us to determine if the dioxin levels being deposited differ in each flood event. The Dow samples through the PRMP are designed to sample the surface soils to determine if any exposure guidelines are being approached or exceeded.

Once again, I thank you for your assistance and your patience as we have worked through the cleanup and as we continue to monitor the situation.

Respectfully,

A handwritten signature in black ink, appearing to read "Jeffrey W. Kimble".

Jeffrey W. Kimble, On-Scene Coordinator  
U.S. EPA

Attachments: Post-removal Monitoring Plan  
Data Table (compile by Weston Solutions)

C: Al Taylor, MDEQ  
File



The Dow Chemical Company  
Midland, MI 48674

Via Electronic

April 23, 2009

Mr. Jeffrey Kimble  
USEPA Large Lakes Research Station/ORD  
USEPA Region 5, Emergency Response Branch #1  
9311 Groth Road (mail code: SE-GI)  
Grosse Ile, MI 48138-1697  
E-Mail: [kimble.jeffrey@epamail.epa.gov](mailto:kimble.jeffrey@epamail.epa.gov)

Re: Post Removal Work Plan for Exposure Unit 001, Riverside Boulevard, City of Saginaw, Saginaw County, Michigan, Settlement Agreement No. V-W-08-C-906.

Mr. Kimble:

Please find attached the final version of the Post Removal Work Plan containing EPA's suggested changes. As required by an Administrative Order on Consent (AOC) Settlement Agreement No. V-W-08-C-906 between the United States Environmental Protection Agency (EPA) and The Dow Chemical Company (Dow), a Post-Removal Work Plan (Plan) was developed to detail activities and procedures for the site identified as Exposure Unit 001 (EU001) located on Riverside Boulevard in the City of Saginaw, Michigan following the completion of removal activities. Dow appreciates EPA's comments and your approval of this work plan provided in an email on April 23, 2009.

Should you have any questions please feel free to contact me at 989-859-4588

Sincerely,  
The Dow Chemical Company

Todd Konechne  
Project Coordinator

CC: Ben Baker, Dow  
Peter Wright, Dow  
Greg Cochran, Dow  
Steve Lucas, Dow  
Alan Taylor, MDEQ

## **1.0 Post Removal Site Control Work Plan**

As required by an Administrative Order on Consent (AOC) Settlement Agreement No. V-W-08-C-906 between the United States Environmental Protection Agency (EPA) and The Dow Chemical Company (Dow), a Post-Removal Work Plan was developed to detail activities and procedures for the site identified as Exposure Unit 001 (EU001) located on Riverside Boulevard in the City of Saginaw, Michigan following the completion of removal activities. EU001 is generally described as an area approximately 1,000-foot long by 150-foot wide bounded by the bank of the Tittabawassee River to the south, Consumers Power lines to the west, a berm on state land to the north, and a forested area to the east (the "Site").

### **1.1 Background of Activities at the Site**

Under the AOC, surface soils were removed eliminating the elevated concentrations of dioxin toxic equivalence (TEQ) which were identified by sampling of near surface soils. Following removal activities, clean backfill and topsoil were put in place of the removed soil. A site map with current site elevations is provided as Figure 1.

### **1.2 Post Removal Site Control Objectives**

The Post Removal Site Control Work Plan establishes an annual program for monitoring TEQ concentrations in the soil following river flood events. The monitoring program will allow a determination of the long term effect of flood events on the recontamination rate, if any, and to evaluate the integrity of the cleanup that was conducted at EU001. The initial phase of the monitoring program will also evaluate soil conditions following individual flood events. For the purposes of this plan, "a flood" shall be understood to be water covering the real property at any part of EU001 which is in any way laterally connected to waters of the Tittabawassee River. The soil sampling in conjunction with monitoring flood events (tracking flood water elevations and flood coverage of the Site) will provide a basis for the evaluations. This program will be referred to as the Post Removal Monitoring Plan (PRMP). The PRMP will include a description of sampling strategies and procedures and data management that will be conducted to meet the objectives. Sampling data and flood event monitoring will be presented in an annual report.

### **1.3 Flood Monitoring and Documentation**

The frequency and extent of each flood event at the Site will be documented to allow tracking of flood coverage and correlation to previous flood events. Each flood event will be recorded through establishing a high water elevation for the flood event. The flood event will be documented by correlating the elevation at the Saginaw River gauging station located at Rust Street with known topographic elevations within EU001. The high 3 water elevation coverage will be displayed on a Site map to depict the flood water coverage. This information will be included in the annual report.

### **1.4 PRMP Sampling Overview**

Dow will coordinate with EPA and the MDEQ (together the Agencies) for the identification of the six sample locations. Once locations are identified and access agreements are obtained, the first step of the PRMP will be the collection and analysis of soil samples that will serve as the initial concentration data. Following the collection of these samples, soil samples will be collected on a flood by flood basis for three events. After completing the sampling and analysis following the third flood event, EPA (or MDEQ if MDEQ is designated as the lead agency for purposes of oversight of implementation of the PRMP) in consultation with Dow, will evaluate the data and, in consultation with Dow, will determine if this sampling frequency will continue for an additional number of events. If EPA (or MDEQ if MDEQ is designated as the lead agency), in consultation with Dow determines, that sampling following each flood event is not needed, then soil sampling events will be conducted at the end of the

flood season in October on an annual basis. The sampling locations are proposed to be located at the transition areas including the upstream, downstream and north areas that bound the site. Three additional sample locations, based on obtaining access agreements, will also be proposed on residential properties. The sampling method, described below, will include having a detailed survey with elevations for each sample location that can be correlated to documented flood elevation and coverage. An annual report will be submitted summarizing the findings. Following the submittal of the annual report, the PRMP will be evaluated annually with EPA (or MDEQ if MDEQ is designated as the lead agency for purposes of oversight of implementation of the PRMP) to determine if modifications to the PRMP are necessary.

#### **1.4.1 Initial Sampling**

Once the sample locations are finalized in the field with EPA (or MDEQ if MDEQ is designated as the lead agency for purposes of oversight of implementation of the PRMP) and access agreements are obtained, six soil samples representing locations described below will be collected for laboratory analysis utilizing the soil sampling procedure attached as Appendix A. These sample results will be utilized to establish baseline TEQ concentrations for the PRMP. However, since no baseline sampling was conducted for the sod during the restoration after the removal action, if requested by EPA (or MDEQ if MDEQ is designated as the lead agency for purposes of oversight of implementation of the PRMP) Dow will collect samples from the sod source in order to establish a background TEQ concentration.

#### **1.4.2 Sampling Activities, Locations and Frequency**

As previously discussed, the locations will be identified and finalized in the field with EPA (or MDEQ if MDEQ is designated as the lead agency for purposes of oversight of implementation of the PRMP) and access agreement will be obtained. Six soil samples will be collected utilizing the hoop composite method. This consists of taking 15 surface core samples around a 6 foot diameter hoop and combining the cores for a single composite sample. See Appendix A for the sample collection details. The six soil samples will be taken from the following locations:

- One from the furthest up-river property on the west end of Riverside Boulevard, which is owned by Consumers Energy,
- One from the furthest down-river property on the east end of Riverside Boulevard, which is owned by the Michigan Fast Track Land Bank Authority;
- One from the property on the north side of the Riverside Boulevard which is owner by the Michigan Fast Track Land Bank Authority;
- One from three residential properties that provide relatively low, medium and high elevation locations. The location of these samples will be determined by the receipt of long term sampling access agreements from property owners.

The Consumer's property is at a lower elevation than the majority of the site and will be one of the first areas to flood as compared to the residential yards. The Land Bank property both on the east end and north of Riverside Boulevard initially flood from backwaters moving from east to west. Some of the residential properties are the last areas to flood. This sampling strategy was selected to evaluate for recontamination based upon differing elevations across the site and the magnitude of flooding which may occur. Sampling will be conducted on an

annual basis and locations will be surveyed for X,Y,Z coordinates. As discussed above, samples will be collected on a flood by flood basis for up to three flood events, and will be evaluated by EPA (or MDEQ if MDEQ is designated as the lead agency for purposes of oversight of implementation of the PRMP) in consultation with Dow, to determine if this sampling frequency will continue for an additional number of events... Once sampling on a flood by flood basis is complete, samples will be collected in October each year to capture both the spring and fall flood seasons.

#### **1.4.3 Annual Reporting**

The analytical results will be submitted to the agency within 30 days of receipt of final validated analytical results from the laboratory. An annual report will be submitted once a year. The annual report will include the following:

- Analytical data from current year sampling event;
- A cumulative summary of analytical data and comparison
- Sample locations depicted on a map
- A Flood Magnitude Figure for each flood which occurs during that reporting period  
Following the submittal of the annual report, the PRMP will be evaluated with the oversight regulatory agency on an as-needed basis to determine if modifications are necessary.

#### **1.5 Sampling Equipment and Procedures**

Samples will be collected as described in the SOPs provided in Appendix A. Each sampling location will be surveyed to document the location. EPA (or MDEQ if MDEQ is designated as the lead agency for purposes of oversight of implementation of the PRMP) will be contacted 48-hours prior to mobilization to conduct soil sampling.

#### **1.6 Sample Handling and Analysis**

##### **1.6.1 Sample Preservation**

All samples will be placed on ice in a cooler after collection and maintained at 4 degrees centigrade. Long-term storage of samples will be done using a sample refrigerator designated for sample storage only. Long-term storage will be maintained at -10 degrees centigrade.

##### **1.6.2 Sample Labeling**

Sample jars and vials will be clearly labeled with the following information:

- Unique sample identification;
- Sample Type (discrete or composite)
- Sampler name or initials;
- Date sample collected;
- Time sample collected; and
- Analysis to be performed.

##### **1.6.3 Chain of Custody Procedures**

All samples will be logged on a chain-of-custody record form. Transfer or shipment will include the chain-of-custody record form. A release and/or receipt signature is required for a change in custody of samples. The last person to sign the form retains responsibility for the samples.

#### **1.7 Schedule**

Dow will schedule a meeting with EPA (or MDEQ if MDEQ is designated as the lead agency for purposes of oversight of implementation of the PRMP) within 7 days after approval of

this plan to identify sample locations and begin obtaining appropriate access agreements. Implementation of the PRMP shall start within 30 days after EPA approval of the PRMP unless otherwise provided by the U.S. EPA. During the period between approval by EPA of the PRMP, and its implementation, Dow will coordinate with EPA and the Michigan Department of Environmental Quality (MDEQ) for the identification of the six sample locations, and during this period Dow will also secure all needed access agreements needed for implementation of the PRMP.

## **2.0 Project Quality Assurance/Quality Control**

All samples and data collection will be completed in accordance with quality assurance (QA) and quality control procedures detailed in the Quality Assurance Project Plan (QAPP) developed for the Tittabawassee River (ATS 2007). The 2007 QAPP incorporates revisions made to the QAPP that was submitted and approved by MDEQ on July 12, 2007. The QAPP provides guidance for field objectives, documentation analytical methods, and field and laboratory procedures.



Attachment 2

Sample ID	Sample Location	Property	DOW's RESULTS			DEQ RESULTS
			ETEQ (ND=0)	ETEQ (ND=0.5 LoD)	ETEQ (ND=LoD)	WHO 2005
EU001-LT01	Lower Transition Area	[REDACTED]	4.51	14	23.6	5.9
EU001-LR01	Lower Residential Area	[REDACTED]	5.74	17.2	28.6	7.9
EU001-MT01	Middle Transition Area	[REDACTED]	10.7	11.7	12.8	0.3
EU001-MR01	Middle Residential Area	[REDACTED]	15.8	27	38.1	6.3
EU001-HT01	High Transition Area	[REDACTED]	76.8	90.2	104	56
EU001-HR01	High Residential Area	[REDACTED]	4.22	14	23.8	6

Note : Results are in nanograms per kilogram  
ng/kg.