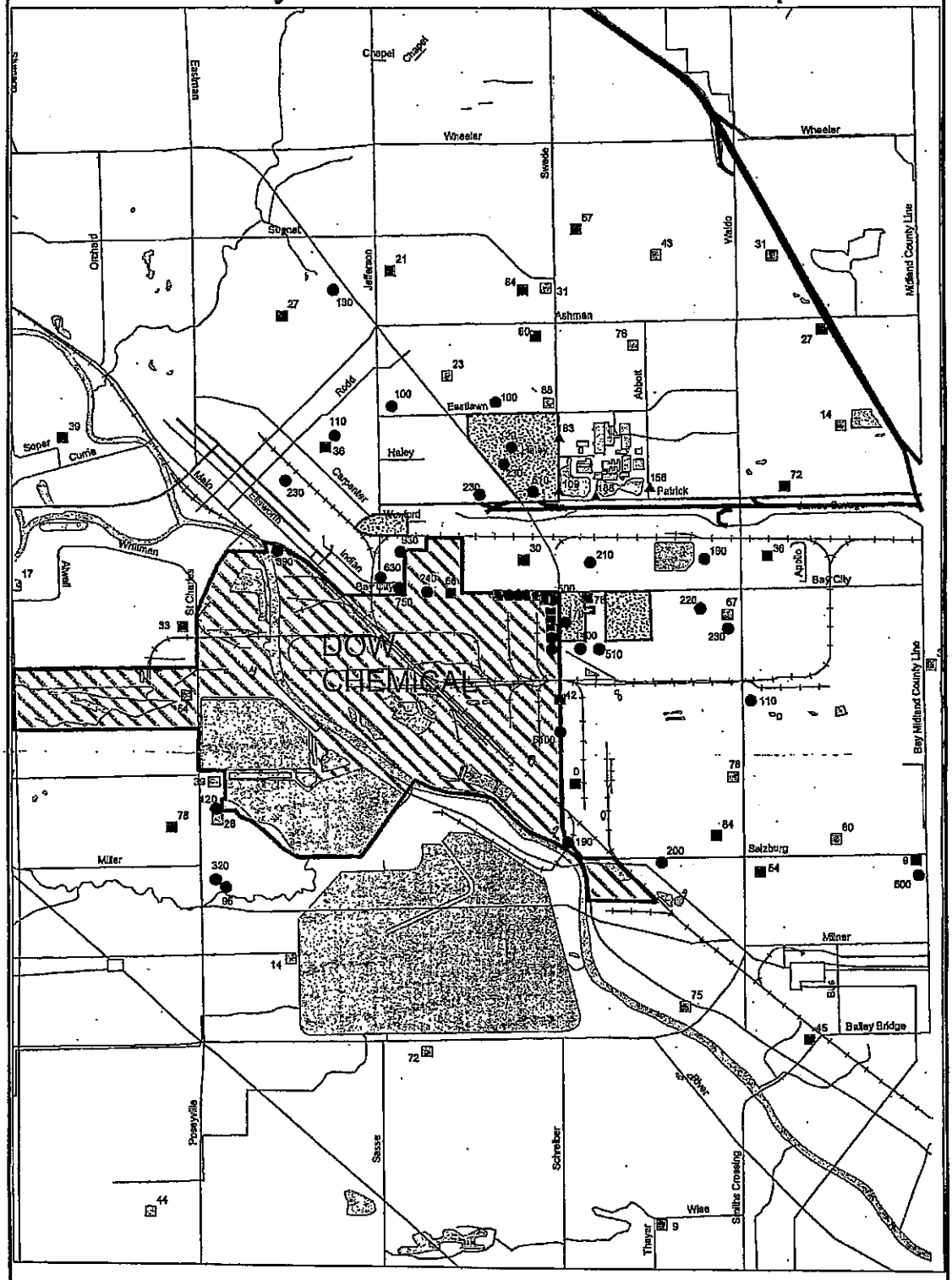
MILLER, CANFIELD, PADDOCK AND STONE, PLC

EXHIBIT C – DOCUMENTS

PACKET #1

Summary of Midland Area Dioxin Samples



Summary of Dow, U.S. EPA & MDEQ Dioxin Data from 1983, 1984, 1986, and 1988

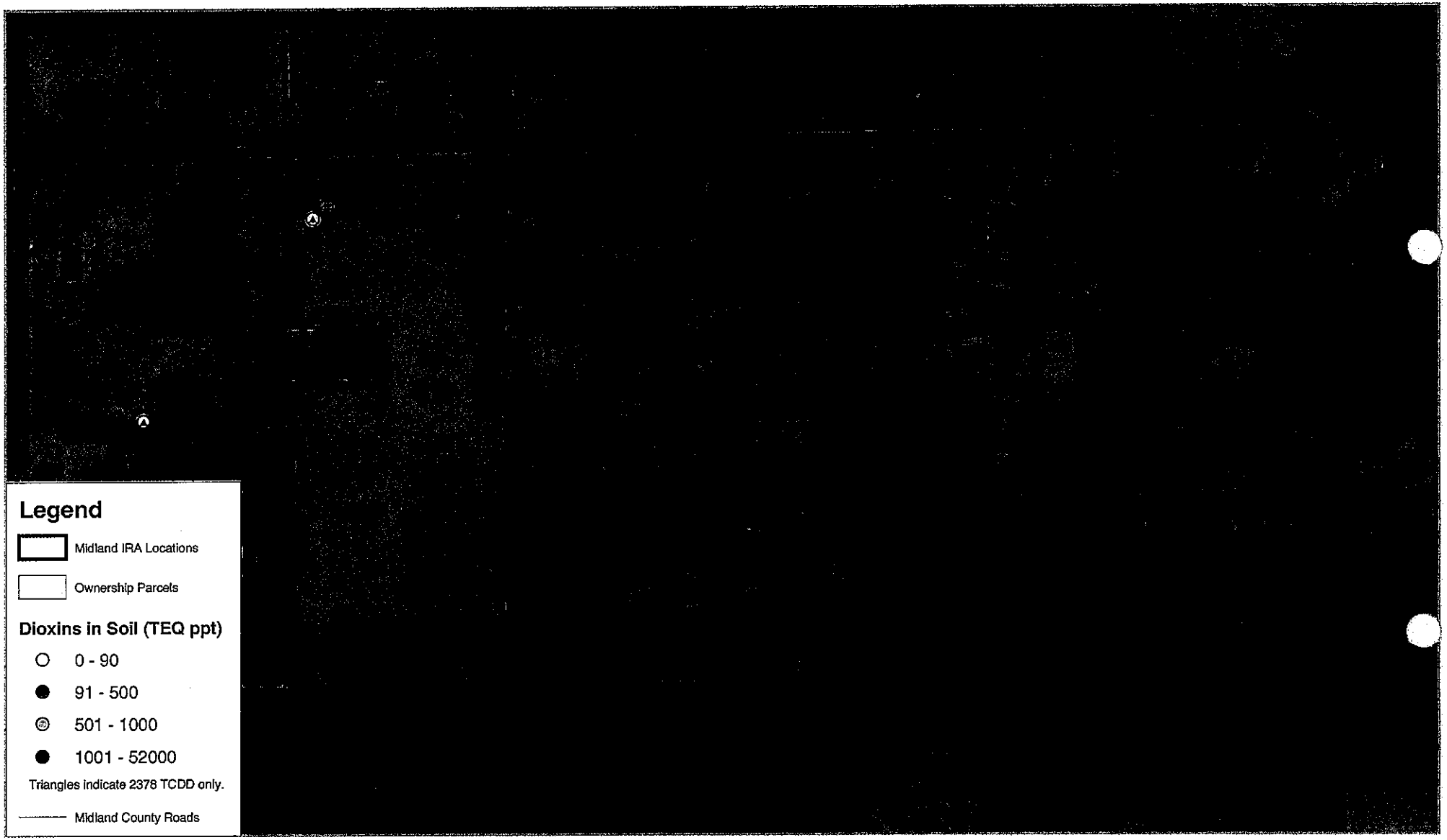
- Less than 90 ppt TEQ
- Exceeds 90 ppt TEQ
- Exceeds 90 ppt TEQ (Average of Multiple Samples)

IRA Neighborhoods

Note: 1983 and 1984 data is estimated using 2,3,7,8-TCDD concentrations and congener profile information.

N

May 25, 2004



N
W E
S

0 75 150 300 Feet

Source Information:
Base mapping from State of Michigan Center for Geographic Information, Geographic Data Library
Sample locations provided by MDEQ

Figure 2
MDEQ-Proposed East of Plant Area IRA
Midland Soils Remedial Investigation
Dow Midland Offsite Corrective Action Program

File Path: O:\GIS\MapDocs\Midland IRAs\Dow-IRAs_EastofPlant_noownership.mxd, Date: 01.30.2004 1:53 PM

CH2MHILL

MIDLAND AREA SOILS
LOG OF INDIVIDUALS EXAMINING INFORMATION
HELD BY THE THIRD PARTY

By signing this log book, you acknowledge that you will not take any notes of any kind regarding the information you view and will take all steps necessary to preserve the confidentiality of this information as contemplated in the Operating Procedure (Attachment B) of the Sampling and Analysis Plan in Support of Bioavailability Study, Midland Area Soils.

Date: 8/28/07 Map Sheets: 1A, 1B, 2A, 2B

Location: Lansing

MCPS Rep.: Tom Phillips

	Name	Affiliation	Time In	Time Out
1	Joel Bush	City of Midland	3:45pm	
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MIDLAND AREA SOILS
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Date: May 16, 2007 Map Sheets: 1A, 1B, 2A, 2B

Location: Lansing

MCPS Rep.: Levine/Crane

	Name	Affiliation	Time In	Time Out
1	Greg Cochran	Dow Chemical	4 10 pm	4 30
2				
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4				
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MIDLAND AREA SOILS
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Date: April 4, 2007 Map Sheets: 1A, 1B, 2A, 2B

Location: Lansing Office of MCPS

MCPS Rep.: Shoshie Levine

	Name	Affiliation	Time In	Time Out
1	Ben Baker	Dow	9:15 AM	10:45 AM
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MIDLAND AREA SOILS
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Date: February 7, 2007 Map Sheets: 1A, 1B, 2A, 2B

Location: Lansing

MCPS Rep.: Shoshie Levine

	Name	Affiliation	Time In	Time Out
1	Gary Dyke	CH2M Hill	8:50	11:00
2	Garth Colvin	"	9:05	11:00
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LALIB:148349.1\060636-00094

* Colvin took notes regarding next steps, not about the maps.

MIDLAND AREA SOILS
LOG OF INDIVIDUALS EXAMINING INFORMATION HELD BY THE THIRD PARTY

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Date: 2/2/07 Map Sheets: 1A, 1B, 2A, 2B

Location: Lansing Ofc MCPS

MCPS Rep.: Lancaster / Levine

	Name	Affiliation	Time In	Time Out
1	Dee Montgomery	MDEQ	Noon	1:28pm
2	Steve Buda	MDEQ	12:03	
3	Deb MacKenzie-Taylor	MDEQ	12:03	
4	[illegible]	MDEQ	1203	
5	[illegible]	MDEQ	12:03	
6	Allen B. Taylor	MDEQ	12:03	
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MIDLAND AREA SOILS
LOG OF INDIVIDUALS EXAMINING INFORMATION
HELD BY THE THIRD PARTY

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Date: January 31, 2007 Sheets: 1A, 1B, 2A, 2B

Location: MCPS Lansing Office

MCPS Rep.: Shoshie Levine / Jim Lancaster

	Name	Affiliation	Time In	Time Out
1	Allan B. Taylor	MDEQ	13:30	3:15
2	Cheryl Howe	MDEQ	"	3:15
3	Ben Baker	Dow	14 ish	3:35
4	Joel Bush	City of Midland	14:00	3:35
5	Tom Pulley	MCHD	14:30	3:00
6	Greg Cochran	Dow	14:00	3:35
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Charge
Sampling and Analysis Plan in Support of Bioavailability Study,
Midland Area Soils

In order of importance, which soil parameters are known to influence the bioavailability of dioxins and furans? Should additional soil parameters be included in the sampling and analysis plan? Are any of the parameters listed unnecessary or of little importance to bioavailability? If you recommended adding or deleting parameters, please explain why.

Will the source of contamination ((e.g., combustion processes, process emissions, fugitive dust transport – wind born and mechanical) significantly affect the soil parameters that should be considered for bioavailability? If so, how should this be taken into consideration?

Should an evaluation be performed to determine dioxin and furan concentrations within different size fractions, (e.g., greater and less than 250 μm)? Should there be more empirical evaluation (e.g., using separation methods, microscopic methods or other methods) of the association of dioxins and furans with different soil components to aid in the determination which soil components are likely to influence the bioavailability of the dioxins and furans in these soils?

Comment on the procedures proposed for evaluating the statistical and spatial distributions of bioavailability parameter results. Are there other approaches that are more appropriate?

Should the correlation between individual soil parameters and soil dioxin and furan concentrations be evaluated? If so, how?

Are the data evaluation procedures for dioxins and furans discussed in Section 3.3 consistent with accepted methods? Are these procedures adequate to allow authors to identify test soils representative of dioxin/furan concentrations throughout the area for the bioavailability study? Should clusters or hot spots be evaluated in addition to area-wide concentrations?

Do you have any comments on an aspect of the sampling plan that has not been addressed in the charge?

Report of the Peer Consultation Conference Call: Sampling and Analysis Plan In Support of Bioavailability Study, Midland Area Soils

Submission by
The Dow Chemical Company

Peer Consultation Organized by
Toxicology Excellence for Risk Assessment
(http://www.tera.org/peer)

September 21, 2006

Table of Contents

Executive Summary

This peer consultation meeting has been organized by Toxicology Excellence for Risk Assessment (*TERA*). *TERA* is an independent non-profit organization with a mission to protect public health through the best use of toxicity and exposure information in the development of human health risk assessments. *TERA* has organized and conducted peer review and peer consultation meetings for private and public sponsors since 1996.

This peer consultation conference call was part of an ongoing effort to develop site-specific bioavailability data that may be used to generate site-specific cleanup criteria for a Dow Chemical Company facility in Midland, Michigan. In an earlier phase of the process, the panel members provided written comments on the study design for the pilot study.

Of the soil parameters discussed in the sampling plan, the panel recommended that only soil organic carbon and particle size would provide relevant information. The analytical method for SOC should be one that uses pulverization, acidification, combustion, and quantification of released CO_2. The panel also recommended that Dow look for correlations between these parameters and concentrations of PCDD/PCDF TEQ. However, the panel also recommended that conducting in vitro chemical desorption assays will give a better understanding of how bioavailable PCDD/PCDFs will be on the different soils observed at the site. One panel member still cautioned that these data may not provide a clear basis for selecting soils, and recommended that a random sampling approach may be an alternative way to select soils. The panel recommended that considering clusters or hotspots is an appropriate approach to analyzing the data and agreed with the assumption of univariate distribution as discussed by the authors for this analysis. Finally, one panel member recommended that a cost/benefit analysis be conducted, given that the preliminary results suggest the site-specific bioavailability may not be significantly different from the 50% default value.

1. Participants

Michigan Department of Environmental Quality
Deborah MacKenzie-Taylor
Al Taylor

Dow Chemical Company
Ben Baker
Bob Budinsky
John Davis

C2HMHill confirm spelling of these names.
Gary Dykema
Alba Turner

Call Facilitator
Michael L. Dourson, Ph.D.
Toxicology Excellence for Risk Assessment (*TERA*)

Peer Consultation Panel Members*

Kelly Black
Environmental Statitician
Neptune and Company

Linda Lee, PhD.
Professor of Environmental Chemistry
Crop Soil and Environmental Sciences
Department of Agronomy
Purdue University

Joseph Pignatello, PhD.
Soil Chemist
Department of Soil and Water
Connecticut Agricultural Experiment Station

* Affiliations listed for identification purposes only.

2. Background and Process

This peer consultation meeting has been organized by Toxicology Excellence for Risk Assessment (*TERA*). *TERA* is an independent non-profit organization with a mission to protect public health through the best use of toxicity and exposure information in the development of

human health risk assessments. *TERA* has organized and conducted peer review and peer consultation meetings for private and public sponsors since 1996.

Elevated levels of PCDDs and PCDFs have been found in surficial soils surrounding the Dow Chemical Company facility in Midland, Michigan. These elevated levels are predominantly the result of air emissions from historical processing and combustion practices at Dow. Elevated levels of dioxins and furans have also been found in sediments and floodplain soils along the Tittabawassee River downstream of the Dow facility. These two areas have distinct and different patterns of PCDD and PCDF contamination, both in congener distribution and spatial distribution. A detailed investigation to determine the nature and extent of contamination in these two distinct areas has not yet been conducted. It is also not known if there are other contaminants of concern in these areas.

Under Michigan's cleanup program (Part 201, Environmental Remediation of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended), the Michigan Department of Environmental Quality (MDEQ) derives generic, land use-based cleanup criteria utilizing a risk-based approach that is consistent with the approach described in the U.S. EPA RAGS guidance. This approach includes an assumption for oral absorption efficiency when estimating risks from incidental ingestion of soils. The current generic assumption of oral absorption for PCDDs and PCDFs from soil used by MDEQ is 50%. A person conducting a cleanup also has the option to generate and utilize site-specific criteria, rather than using criteria based on generic assumptions.

This peer consultation conference call was part of an ongoing effort to develop site-specific bioavailability data that may be used to generate site-specific cleanup criteria. In an earlier phase of the process, a bioavailability pilot study was conducted to ensure that an adequate study could be designed that would give reliable estimates of relative bioavailability. The sampling and analysis plan that is the subject of this peer consultation will be used to guide selection of the soils to be tested in the full bioavailability study. Panel members were asked to provide written responses to the Charge questions (see Appendix X) ; these comments were provided to all parties prior to the conference call and are attached to this report in Appendix X.

At the start of the call, Dr. Dourson, the facilitator, described how the call would be run. He explained that discussions would be based on the written comments submitted by the panel members prior to the meeting and on the charge questions. He noted that all panelists would have the opportunity to state their own positions on the charge items and to ask one another clarifying questions and further discuss the issues.

TERA has prepared this meeting report. The report summarizes the sponsors' presentations and comments, as well as the panel discussions and recommendations. The meeting report is a summary, not a transcript. Individual opinions of the panel members are noted (although not identified by name), along with areas of agreement and disagreement. Panel members have reviewed and commented on the draft report. The sponsors also were given the opportunity to review the draft report to confirm the accuracy of the sponsor presentations and comments.

3. Sponsor Presentation and Clarifying Questions

Dow gave a short presentation about the purpose of the sampling plan. Dow indicated that the primary purpose for the sampling plan was to gather information on the soil properties that may influence bioavailability in order to identify soils that may be used for future bioavailability feeding studies. A secondary purpose is to better understand the distribution of dioxins and furans in Midland area soils, as well as to identify any other chemicals that may be present in the soils and attributable to Dow activities at the site. The sampling plan employs a transect type approach to sampling that was developed by MDEQ. Since the area is urban, it is not known what types of soil will be found.

Dow also indicated that their goal for the soil sampling was to understand how heterogeneous the soils in the area are and to classify the soils into groups. Particle size analysis was proposed, because it is a typical way of classifying soils (clays, silts, sands, etc.); however, they are not sure if this parameter will be relevant to bioavailability. Other parameters selected parameters were considered to possibly have some relevancy to classifying soils for bioavailability. However, Dow noted that the soil parameters were not selected with the intention of trying to predict bioavailability.

MDEQ noted that the City of Midland required that residential property owners be kept anonymous, which added additional complexity to the sampling plan. As a result, the samples will be blind. One panel member asked how property owners will be kept anonymous when a sampling box falls in a single property. Dow noted that in this case, the owners will not be anonymous; however, most of the properties in the sampling area are industrial or commercial, not residential.

Another panel member asked about how the contaminants were released into the site. Dow replied that air deposition following combustion and windblown particles was the primary method of release; chemicals were not released in the vapor phase.

4. Discussion

Discussion of Written Comments

The facilitator opened the discussion by asking the panel members to summarize their written comments. One panel member noted that the refe rences cited for the analytical methods that would be used to measure the soil parameters were incorrect, particularly for measuring soil organic carbon. This panel member concluded that soil organic matter (SOC), and particular black carbon, will be the most important factor for assessing bioavailability. However, the reference for the analytical method was incorrect. The authors probably mean to cite the companion volume by Sparks, Methods of Soil Analysis, Part 3 Chemical Methods (Chap 34 by Nelson and Sommers). The loss on ignition method could result in and overestimation of SOM because not all of the water would be removed. In addition, there is not a reliable method for differentiating black carbon from natural SOC in that reference. Another panel member agreed. This person noted that the sampling plan calls for evaluating both soil organic matter (SOM) and

SOC and suggested that SOC is a parameter that can be obtained more accurately than SOM. For SOC they need to carefully consider the alternative methods described in Nelson and Sommers to avoid including inorganic C present in soil minerals or lawn care chemicals. However, this reviewer also explained that the relationship between any specific soil properties and bioavailability is unclear, so that there will be no clear guidance on how to use the soil properties data to choose soils for the bioavailability study.

Dow asked if there were methods published in the literature for measuring black carbon. A panel member indicated that two such methods have been published, but that both are unreliable. The first method involves a low temperature combustion where the sample is heated to 375° C in a stream of air. The theory of this method is that ordinary organics are destroyed and the soot carbon is left behind. However the reviewer said that some soot carbon is actually lost too (Nguyen, et al., 2004), so the method is inaccurate. The second method involves acidic dichromate at 55° C. The theory of this method is that ordinary organics are oxidized, leaving the soot behind. However, the reviewer indicated that in this method, not all of the ordinary organic material is removed (Pignatello et al., 2006 and references therein), so the method is inaccurate.

This panel member suggested that the H/C/N ratio proposed in the sampling and analysis plan will not be useful for characterizing bioavailability. The elemental analysis should not be performed unless the SOM has been extracted from the soil, which is arduous and difficult, time-consuming, and often inaccurate in that some mineral components may also be extracted. Another panel agreed. The ratio of H/C/N within SOM may have some correlation to sorption, but not the H/C/N of the whole soil. Inorganic components contain significant amount so H,C and N as well, which are not relevant to sorption of the compounds of interest.There is no literature to support the idea that the H/C/N ratio of the organic matter is related to bioavailablity.

One panel member noted that particle size is a parameter that could influence bioavailability because organic material and clay tend to be enriched in the smaller particles. However another reviewer indicated that although contaminants may be associated with small particles, the small particles may be adhering to larger particles. If contaminants were associated only or predominantly with the small particles, this might tend to obscure any dependence on particle size. Also, reviewers noted that the rate of transfer out of particles may change increase with decreasing particle size, contrary to the assumption in the Sampling and Analysis Plan.

MDEQ then asked the panel whether particle size and PCDD/PCDF concentration would be useful data to collect. See discussion on particle size above. Panel members replied that concentration may not play a big role in the amount of chemical that is bioavailable. It will be sufficient to just evaluate soils with both low and high concentration without having to evaluate an entire range of concentrations. Obviously, it is important to include soils with a wide range in PCDD/PCDF concentration to establish a dose-response curve.

Charge Question #1. *In order of importance, which soil parameters are known to influence the bioavailability of dioxins and furans? Should additional soil parameters be included in the sampling and analysis plan? Are any of the parameters listed unnecessary or of little*

importance to bioavailability? If you recommended adding or deleting parameters, please explain why.

Two panel members agreed that the most relevant approach would be to conduct in vitro desorption experiments on the samples to indicate what could be removed from the different soils following a reference set of conditions and a timeframe. The conditions would mimic the pH and other conditions found in the intestinal tract and would include an infinite sink to gather the desorbed material. The timeframe of the desorption studies should represent the residence time a contaminant may have in the human digestive track. Desorption data could then be compared with the SOC data to see if there is a correlation. Tthe expected correlation, if any, would be that soil with higher SOC will limit transfer of a contamiant to the human, thus may reflect a lower bioavailablity.

MDEQ mentioned a previous desorption study conducted on the Midland area soils. This study was similar to what the panel had just described and suggested a PCDD/PCDF relative bioavailability of 16-26%. In contrast, the pilot in vivo bioavailability study in rats suggested that the relative bioavailability was 30-47%. Given the discrepancy between the in vitro and in vivo studies, MDEQ asked whether the panel members still recommended a desorption study. One panel member suggested that the discrepancy could be explained if the conditions under which desorption was carried out were not representative of the rat system. Even if they are not identical, it is likely that given a sufficient number of samples there would be a correlation between desorption-derived bioavailability and rat assay bioavailability.

Another panel member replied that their work we did with PCBs (so related compounds to those in discussion) showed no correlation to in vivo rat assays and in vitro extraction assays (PBET) among the limited soils tested (Pu et al., 2006). However, this was a limited study with artificially treated soils rather than field soils. Some additional work with field soils for another chlorinated compound suggested that aging in the filed did not seem to change bioavailability as assessed with an in vivo rat assay. Therefore, this panel member questioned whether the in vitro study would prove to be very useful. More definitive work needs to be done in this area. Therefore, if there were funds to include both that would be great. However, the desorption in itself will likely not be helpful in assessing which soils to do more detailed bioavailability studies given the costs. **Note, panel members elaborated on their thoughts while providing comments on the draft. Since this info technically was not part of the conf call, I would be happy to put this info in an Appendix, rather than the body of the notes. Let me know what you think.**

Dow indicated that approximately 145 soil samples will be collected and that the cost of the desorption study would be approximately $25K-35K per sample. This reviewer believes his laboratory could do it for far less. Given the cost how many samples should be analyzed. One panel member replied that even evaluating 10% of the samples could provide useful information. However, panel members noted that it is a management decision on how to most effectively spend money on this issue. Given that the preliminary results of the bioavailability study suggest that site-specific bioavailability may not be significantly different than the 50% default, the panel members suggested that the costs associated with gathering additional site-specific data may not be worth it.

The facilitator then asked the panel to form conclusions on which parameters would be useful to include in the evaluation and which are unnecessary. The panel replied that SOC is the most relevant parameter, but that it is important to remove the inorganic carbon before measuring SOC. The panel also suggested that soil texture data (particle size and specific surface area) could provide useful information and are relatively easy to measure. The panel stated that soil organic matter and the H/C/N ratio are not necessary and can be removed from the list. Black carbon may be a desirable parameter if a reliable method were available, which is not the case. Dow asked if the C/N ratio would provide information that could help differentiate soils. One panel member replied that the first step required would be to separate organic from inorganic matter. It is possible to separate most of the organic matter from the inorganic matter by repetitive treatment with a solution of HF and HCl. Some investigators believe there are significant alterations of organic matter by this treatment, although its effect on C/N is unclear. Even then, this reviewer was not sure that the parameter would tell much about bioavailability.

Charge Question #2. *Will the source of contamination ((e.g., combustion processes, process emissions, fugitive dust transport – wind born and mechanical) significantly affect the soil parameters that should be considered for bioavailability? If so, how should this be taken into consideration?*

One panel member noted that if combustion is the primary source of PCDD/PCDFs in the area, then one would expect that the PCDD/PCDFs would be less bioavailable. However, this person also indicated that there is no way measure this effect since there is no reliable method for measuring the ash particles that originally bore PCDD/PCDFs, which may include black carbon. Another panel member agreed and added that contaminants will come off the transport particles and will then adhere to soil particles, but there is no way to identify and quantify this effect. Finally, another panel member noted that if the site is old (apx 100 years according to Dow), then the sampling design should address this by looking at deeper soils.

Charge Question #3. *Should an evaluation be performed to determine dioxin and furan concentrations within different size fractions, (e.g., greater and less than 250 μm)? Should there be more empirical evaluation (e.g., using separation methods, microscopic methods or other methods) of the association of dioxins and furans with different soil components to aid in the determination which soil components are likely to influence the bioavailability of the dioxins and furans in these soils?*

One panel member stated that if the sampling plan is changed to include this approach, then the current sample size may be inadequate. Other panel members indicated that chemicals will have entered the soil on very small particles, but that the small particles will be associated with larger particles. Although it may be useful to evaluate chemical concentration as a function of particle size, there is no approach for using this information to decide which soils should be used for the bioavailability study.

Charge Question #4. *Comment on the procedures proposed for evaluating the statistical and spatial distributions of bioavailability parameter results. Are there other approaches that are more appropriate?*

One panel member indicated that in general, the approaches used in the sampling plan were appropriate. This person suggested that the authors should consider more visual approaches for showing the results of the analyses. The sampling plan should discuss how non-detects will be handled in the analyses, and should also consider discussing chemical concentrations in terms of concentration above background, where background information is available. The panel member noted that particularly for metals, and for some organics, regional data on background concentrations are available. MDEQ confirmed that they have regional data on background levels of metals and PCDD/PCDFs.

A panel member suggested that the risk-based thresholds be better explained in the sampling plan, and asked, for example, how the 1000 ppt level for PCDD/PCDFs was developed. MDEQ explained that the risk-based thresholds was a generic way of saying "levels of concern". In particular, the 1000 ppt level for PCDD/PCDFs was derived from the ATSDR intermediate MRL and is being used until a site-specific criteria can be developed.

Charge Question #5. *Should the correlation between individual soil parameters and soil dioxin and furan concentrations be evaluated? If so, how?*

A panel member indicated that it is not clear how this would inform the choice of soils for the bioavailability study, but if this data would help, then it could be done. Another panel member said that this could be done if the sampling plan only identified one primary soil parameter and maybe 2 secondary parameters. For identifying a correlation between SOC and PCDD/PCDF concentration would be great. However, if this correlation were observed, that would not automatically mean that there would also be a correlation between SOC and bioavailability.

Charge Question #6. *Are the data evaluation procedures for dioxins and furans discussed in Section 3.3 consistent with accepted methods? Are these procedures adequate to allow authors to identify test soils representative of dioxin/furan concentrations throughout the area for the bioavailability study? Should clusters or hot spots be evaluated in addition to area-wide concentrations?*

One panel member indicated that the methods in the sampling plan were not consistent with accepted methods. Also, these assays do not appear to help authors select soils for the bioavailability studies. Perhaps, a better approach would be just to take a random sampling of soils.

The authors replied that they are assuming a univariate distribution and will look to see if there are relationships between the parameters. They will try to identify any clusters of parameters that appear similar among soils in order to select a group of soils for more detailed studies. The reviewer then indicated that just because soils may appear to be group by certain parameter clusters, it does not mean that the there is a correlation between these parameter clusters and bioavailability. Therefore, soils selected to represent the parameter clusters may not representative in terms of bioavailability of all the soils. Dow replied that they are trying to understand how many different soil categories are present at the site. Another panel member

suggested that, in addition to helping select soils for the bioavailability study, the data on soil parameters may also be used to determine which final bioavailability factors should be applied to different parts of the site. Therefore, it will be important to be sure that the results are representative of the different parts of the site.

Charge Question #7. *Do you have any comments on an aspect of the sampling plan that has not been addressed in the charge?*

One panel member was concerned that, given the assumption of homogeneity in the sampling boxes, it was not reasonable to justify an interim action for only the sampled property without verifying that the other properties do not share similar PCDD/PCDF concentrations. Dow explained that if they find a sample in one box that is greater than the action level, then additional samples would be analyzed in that box.

A panel member stated that the sampling is not random, but rather seems to be biased toward the higher concentration areas. This person urged that caution be used when using this data for a more full characterization of the site during the remedial investigation. A reviewer asked why the sampling was being conducted only outside the Dow plant. MDEQ explained this was due to the fact that earlier sampling on the Dow plant showed that the PCDD/PCDF congener profiles were different on-site than in the community.

Another reviewer asked how the plant material would be removed from the samples before analyzing. The authors explained that large pieces would be removed by hand, and then the soil would be put through a ¼ inch screen.

Finally, a panel member asked what mechanism would be used for deciding which soils to use in the bioavailability study. MDEQ replied that no mechanism has been selected yet. Based on the results from the first round of sampling, Dow will propose a procedure for selecting soils. MDEQ will review this proposal and then forward it to the panel for their suggestions.

5. Panel Recommendations

Of the soil parameters discussed in the sampling plan, the panel recommended that only soil organic carbon (SOC) and particle size distribution among the parameters proposed may provide relevant information. However, panel members noted that there is little guarantee of even this providing enough information to help select soils for bioavailability testing, which is why random sampling was suggested by one reviewer. The analytical method for SOC should be one that uses pulverization, acidification, combustion, and quantification of released CO_2. The panel also recommended that Dow look for correlations between these parameters and concentrations of PCDD/PCDF TEQ. The panel also suggested that conducting in vitro chemical desorption assays may give a better understanding of how bioavailable PCDD/PCDFs will be on the different soils observed at the site. While some type of desorption measurement may in fact be better than simply SOC and texture, the cost to do such, which is 2 orders of magnitude more, must clearly be justified. Panel members still cautioned that these data may not provide a clear basis for selecting soils, and recommended that a random sampling approach may be an

alternative way to select soils. The panel recommended that considering clusters or hotspots is an appropriate approach to analyzing the data and agreed with the plan to rely mainly on univariate analyses as discussed by the authors. Finally, one panel member recommended that a cost/benefit analysis be conducted, given that the preliminary results suggest the site-specific bioavailability may not be significantly different from the 50% default value.

6. References

Nguyen, T. H.; Brown, R. A.; Ball, W. P. 2004. An evaluation of thermal resistance as a measure of black carbon content in diesel soot, wood char, and sediment *Org. Geochem.*, 35: 217-234.

Pignatello, J. J.; Lu, Y.; LeBoeuf, E. J.; Huang, W.; Song, J.; Xing, B. 2006. Nonlinear and competitive sorption of apolar compounds in black carbon-free natural organic materials. *J. Environ. Qual.* 35: **page #?**.

Pu, X. L.S. Lee, RE. Galinsky, GP Carlson . 2006. Bioavailability of 2,3_,4,4_,5-pentachlorobiphenyl (PCB118) and2,2_,5,5_-tetrachlorobiphenyl (PCB52) from soils using a rat model and a physiologically based extraction test. *Toxicology* 217:14–21