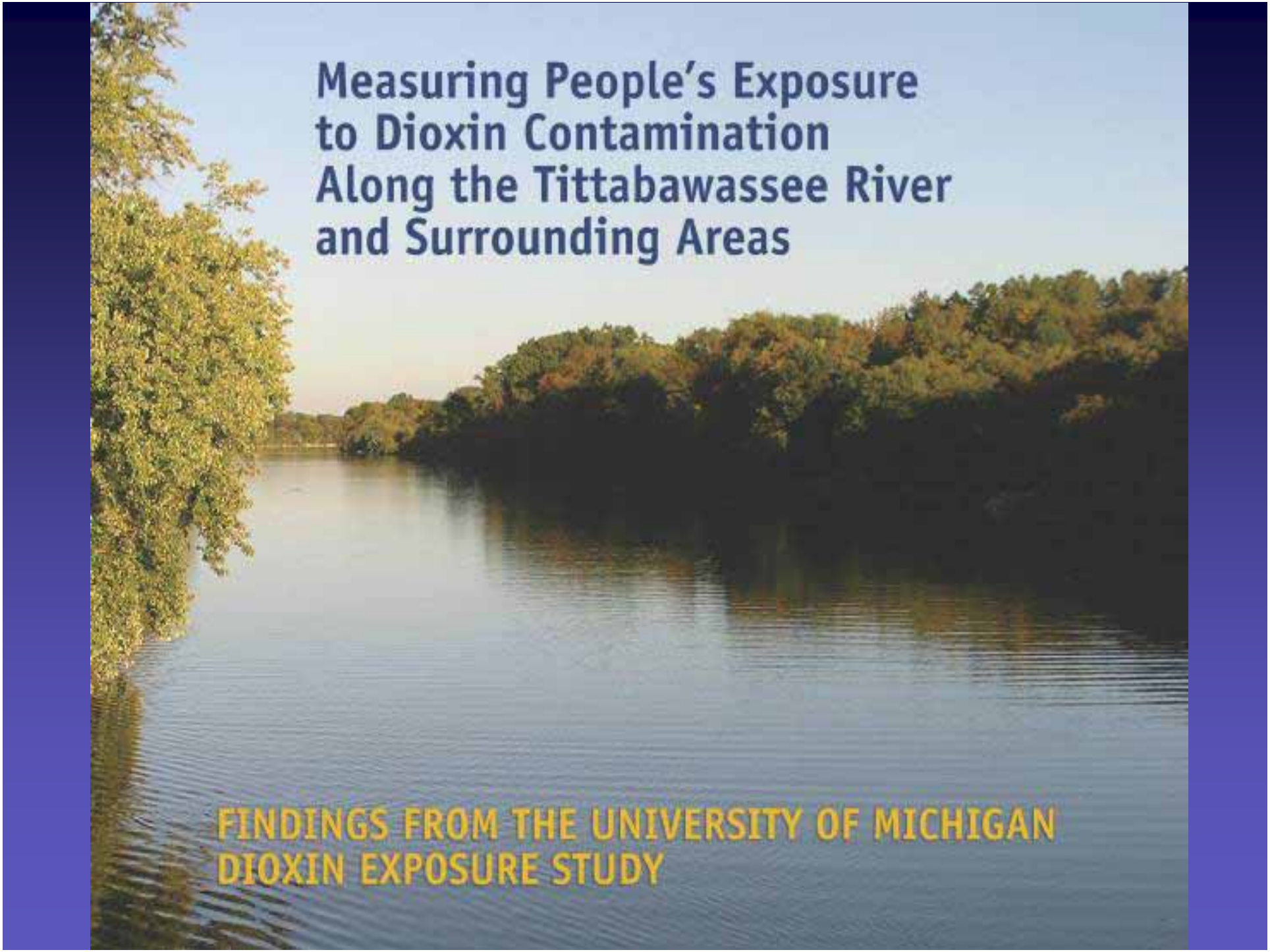
Measuring People's Exposure
to Dioxin Contamination
Along the Tittabawassee River
and Surrounding Areas
FINDINGS FROM THE UNIVERSITY OF MICHIGAN
DIOXIN EXPOSURE STUDY

UNIVERSITY OF MICHIGAN

Financial support for this study comes from The Dow Chemical Company through an unrestricted grant to the University of Michigan.

The University of Michigan has complete independence to design, carry out, and report the results of the study.

The investigators report to an independent Scientific Advisory Board (SAB).

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IMERMAN MEMORIAL PAR
SAGINAW COUNTY
PARKS AND RECREATION COMMISSION


CAUTION CAUTION CAUTION
PLEASE STAY OFF RIVERBANK
THIS PARK HAS ELEVATED LEVELS OF DIOXINS IN THE SOIL


FOR HAND
WASHING
ONLY
Not For Drinking
Not For
Fish Cleaning

Study Hypothesis

- **Analyses will answer the principal question:**
  - *Are serum dioxin levels related to soil dioxin levels?*
- **These analyses will control for the effects of other factors (age, sex, BMI, fish consumption, meat consumption, residential proximity to Dow, etc.)**

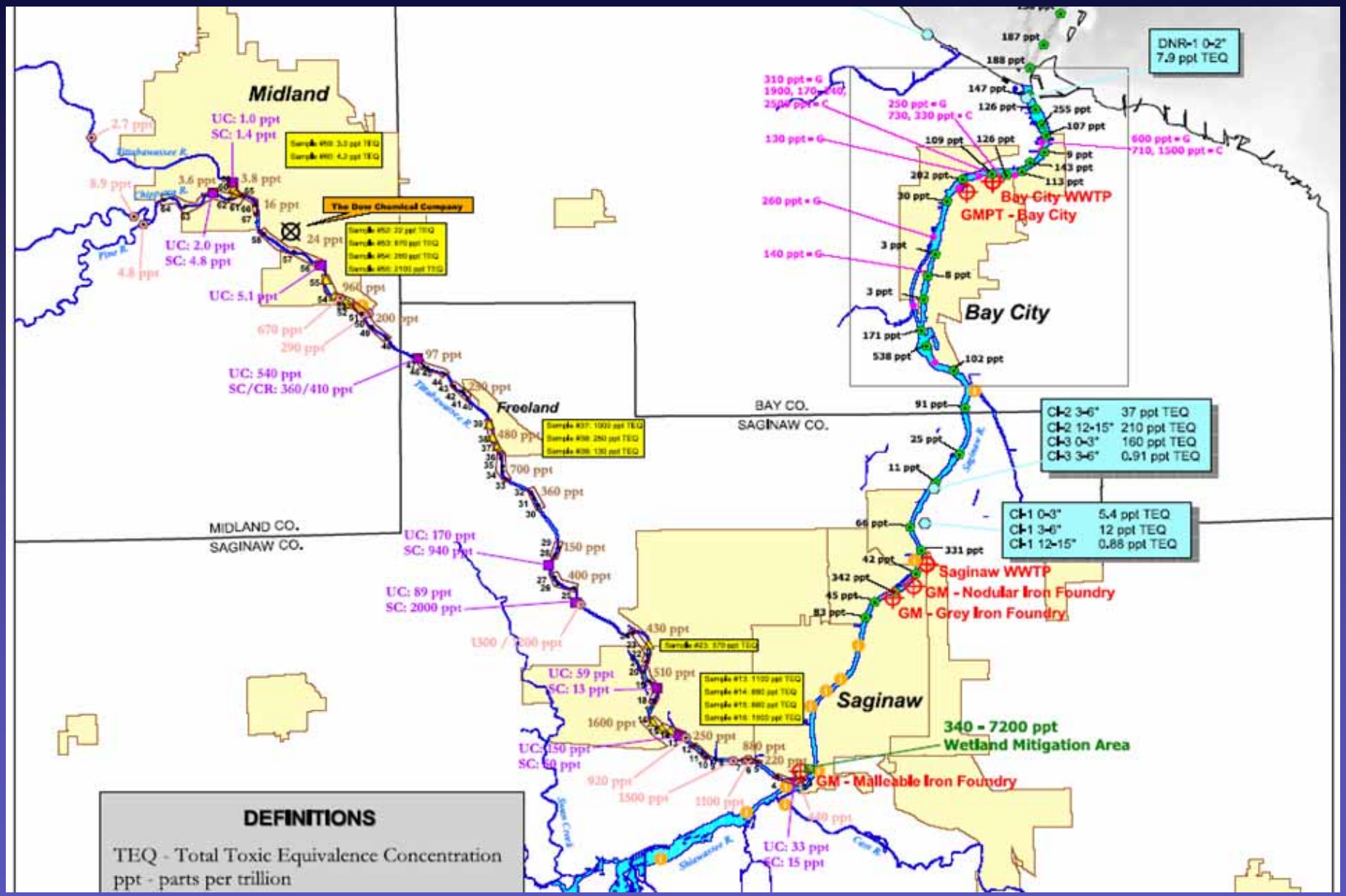
Study Design

We studied people who live in five different geographic areas:

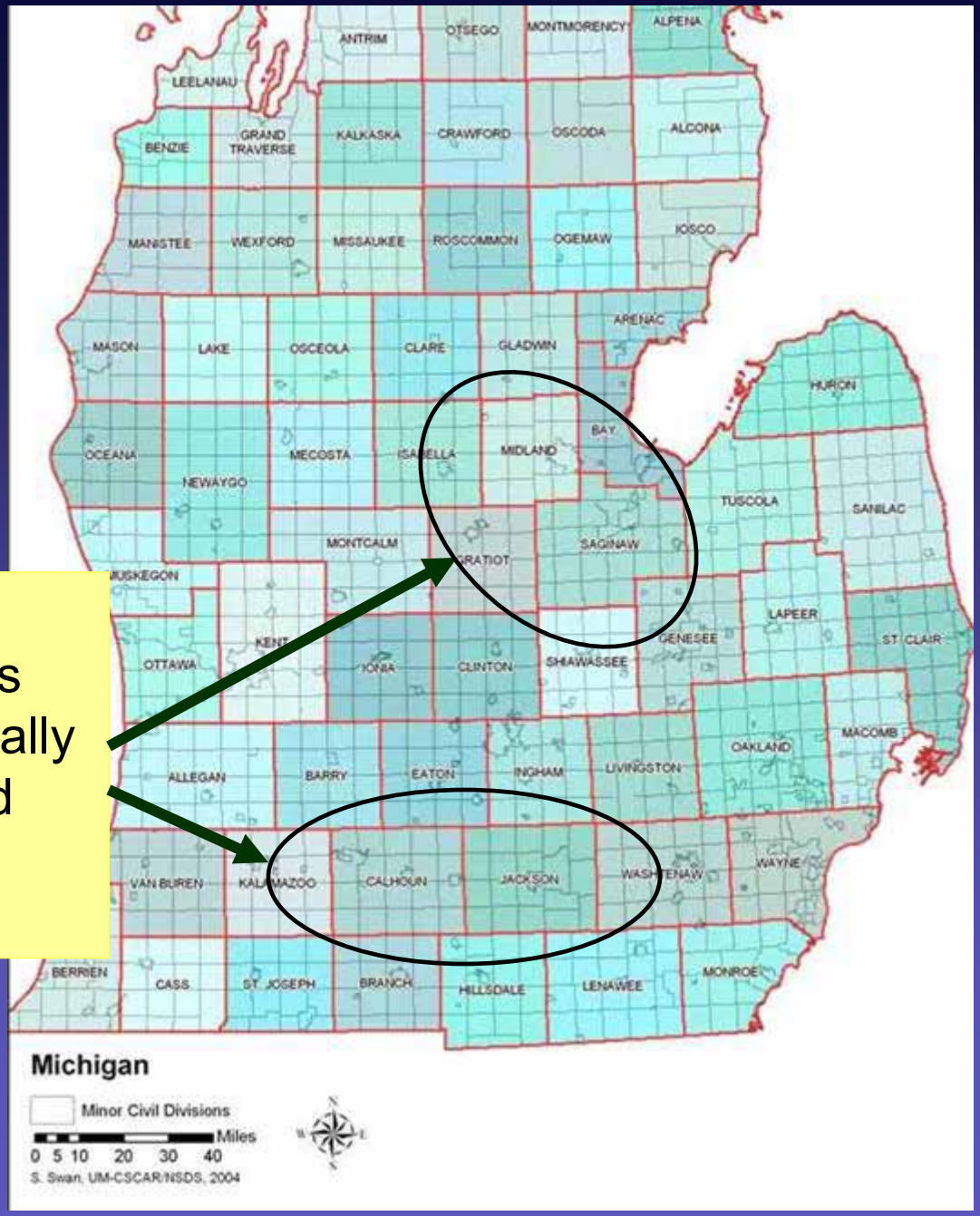
- The Floodplain of the Tittabawassee River
- The Near Floodplain
- The Midland Plume – downwind of the Dow plant
- Other Midland/Saginaw – not near the rivers or Dow
- For comparison, Jackson/Calhoun Counties

We interviewed them and studied levels of dioxins in their property soil, household dust and blood samples. A total of 695 Midland/Saginaw residents and 251 Jackson/Calhoun residents gave blood samples.

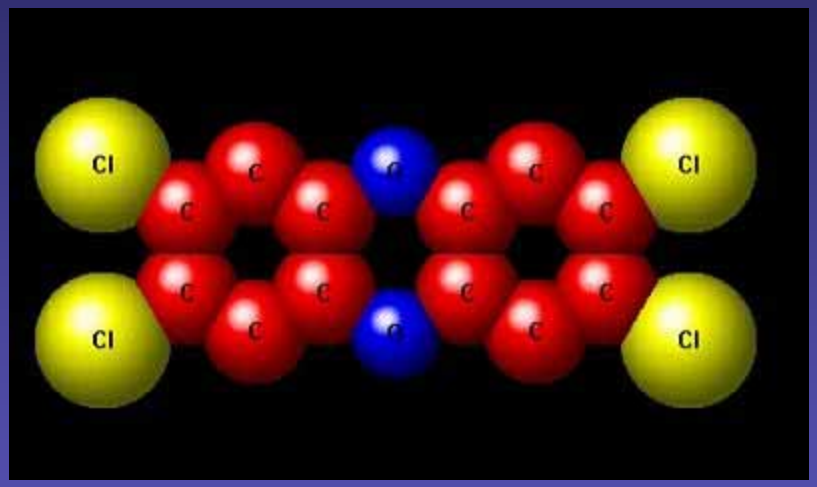

KEWEENAW
HOUGH-TON
ONTONAGON
BARAGA
GOGEBIC
IRON
MARQUETTE
ALGER
LUCE
CHIPPEWA
SCHOOL-CRAFT
MACKINAC
DICKIN-SON
DELTA
MENOMINEE
EMMET
CHEBOYGAN
PRESQUE ISLE
CHARLEVOIX
LEELANAU
ANTRIM
OTSEGO
MONT-MORENCY
ALPENA
BENZIE
GRAND TRAVERSE
KALKASKA
CRAW-FORD
OSCODA
ALCONA
MANISTEE
WEXFORD
MISSAUKEE
ROSCOM-MON
OGEMAW
IOSCO
ARENAC
MASON
LAKE
OSCEOLA
CLARE
GLADWIN
HURON
OCEANA
NEWAYGO
MECOSTA
ISABELLA
MIDLAND
TUSCOLA
SANILAC
MUSKEGON
MONTCALM
GRATIOT
SAGINAW
LAPEER
ST. CLAIR
OTTAWA
KENT
IONIA
CLINTON
SHIA-WASSEE
GENESEE
MACOMB
ALLEGAN
BARRY
EATON
Lansing
INGHAM
LIVING-STON
OAKLAND
VAN BUREN
KALA-MAZOO
CALHOUN
JACKSON
WASH-TENAW
Detroit
WAYNE
BERRIEN
CASS
ST. JOSEPH
BRANCH
HILLS-DALE
LENAWEE
MONROE


Midland
Freeland
Bay City
Saginaw
MIDLAND CO.
SAGINAW CO.
BAY CO.
SAGINAW CO.
The Dow Chemical Company
Bay City WWTP
GMPT - Bay City
Saginaw WWTP
GM - Nodular Iron Foundry
GM - Grey Iron Foundry
GM - Malleable Iron Foundry
340 - 7200 ppt
Wetland Mitigation Area
DNR-1 0-2"
7.9 ppt TEQ
Ch-2 3-6" 37 ppt TEQ
Ch-2 12-15" 210 ppt TEQ
Ch-3 0-3" 160 ppt TEQ
Ch-3 3-6" 0.91 ppt TEQ
Ch-1 0-3" 5.4 ppt TEQ
Ch-1 3-6" 12 ppt TEQ
Ch-1 12-15" 0.88 ppt TEQ
UC: 1.0 ppt
SC: 1.4 ppt
UC: 2.0 ppt
SC: 4.8 ppt
UC: 5.1 ppt
UC: 540 ppt
SC/CR: 360/410 ppt
UC: 170 ppt
SC: 940 ppt
UC: 89 ppt
SC: 2000 ppt
UC: 59 ppt
SC: 13 ppt
UC: 33 ppt
SC: 15 ppt
DEFINITIONS
TEQ - Total Toxic Equivalence Concentration
ppt - parts per trillion

Jackson and Calhoun Counties are demographically similar to Midland and Saginaw Counties.

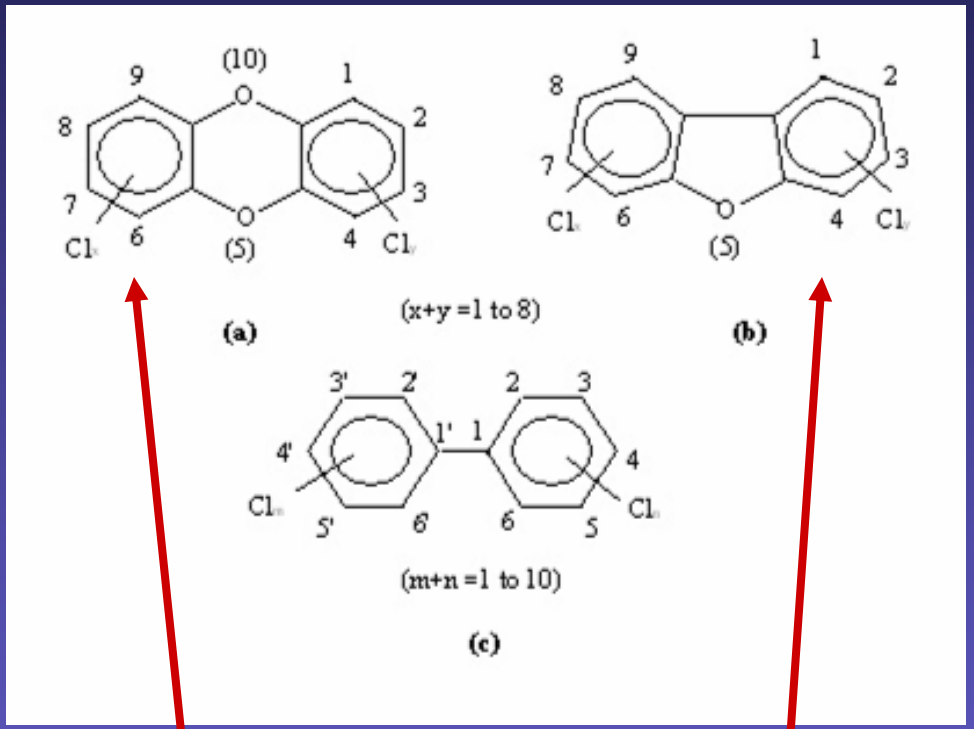


Dioxins, Furans and PCBs



2,3,7,8-tetrachlorodibenzo-p-dioxin

(TCDD)



Congeners and WHO 29 TEF Values

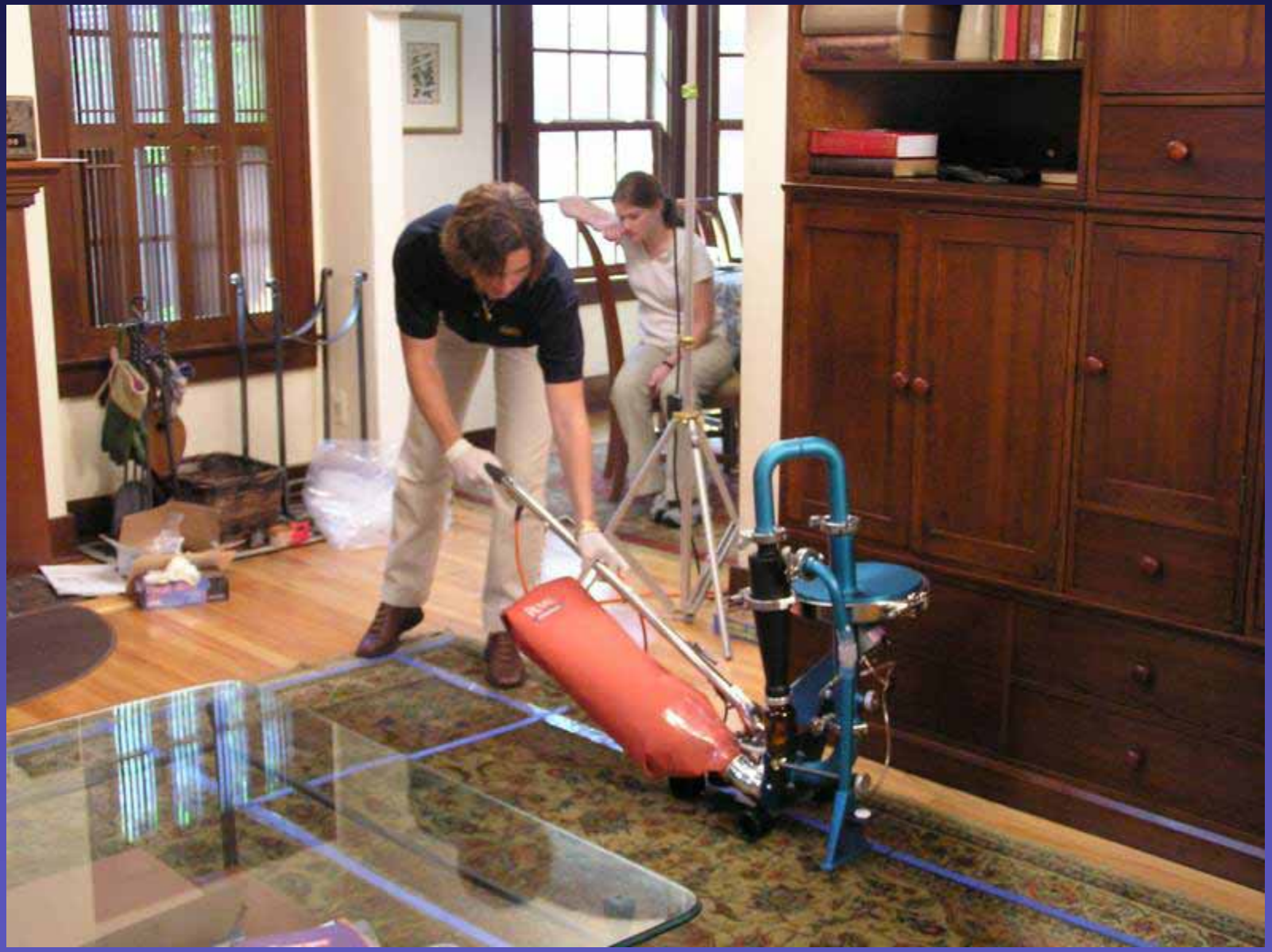
Dioxin Congener	WHO TEF Value
2,3,7,8-TCDD	1.0
1,2,3,7,8-PnCDD	1.0
1,2,3,4,7,8-HxCDD	0.1
1,2,3,6,7,8-HxCDD	0.1
1,2,3,7,8,9-HxCDD	0.1
1,2,3,4,6,7,8-HpCDD	0.01
OCDD	0.0001

Furan Congener	WHO TEF Value
2,3,7,8-TCDF	0.1
1,2,3,7,8-PnCDF	0.05
2,3,4,7,8-PnCDF	0.5
1,2,3,4,7,8-HxCDF	0.1
1,2,3,6,7,8-HxCDF	0.1
1,2,3,7,8,9-HxCDF	0.1
2,3,4,6,7,8-HxCDF	0.1
1,2,3,4,6,7,8-HpCDF	0.01
1,2,3,4,7,8,9-HpCDF	0.01
OCDF	0.0001

PCB Congener	WHO TEF Value
PCB 77	0.0001
PCB 81	0.0001
PCB 126	0.1
PCB 169	0.01
PCB 105	0.0001
PCB 114	0.0005
PCB 118	0.0001
PCB 123	0.0001
PCB 156	0.0005
PCB 157	0.0005
PCB 167	0.00001
PCB 189	0.0001

$$TEQ = \Sigma\ Congener_x \times TEF_x$$

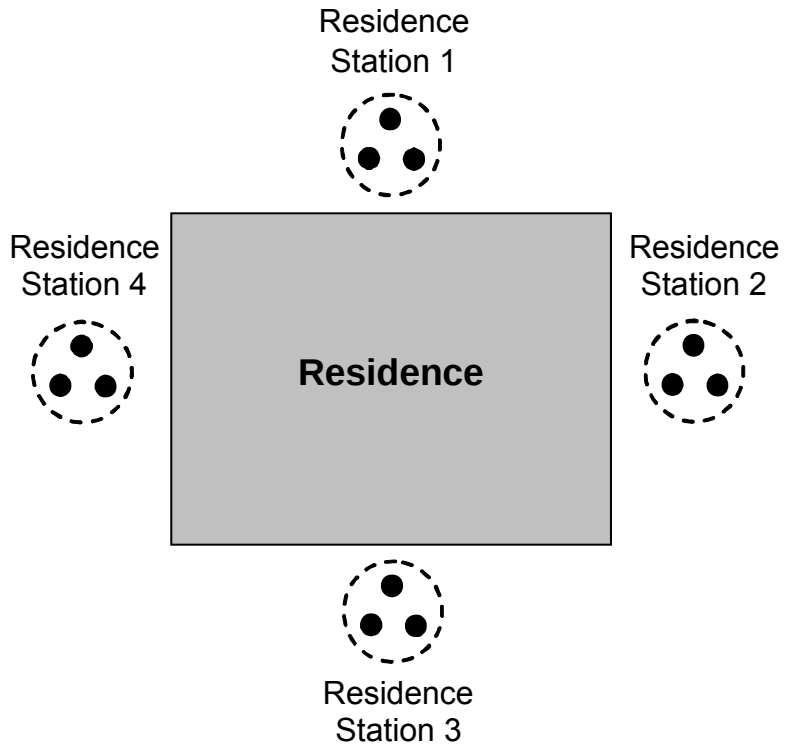
Household Dust Collection



Soil Collection Design

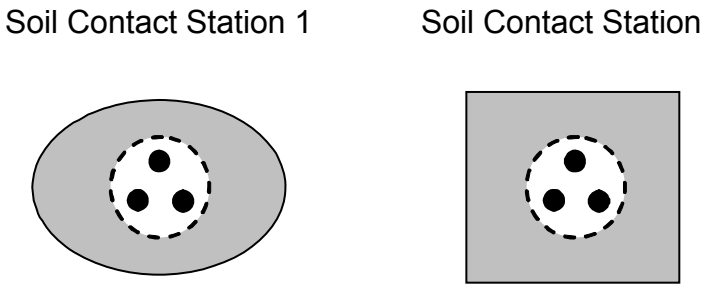
Residence Zone

- 4 Sampling Stations
- 3 Cores per Station
- 3 Strata per Core



Soil Contact Zone

- Up to 2 Sampling Stations
- 3 Cores per Station
- 2 Strata per Core

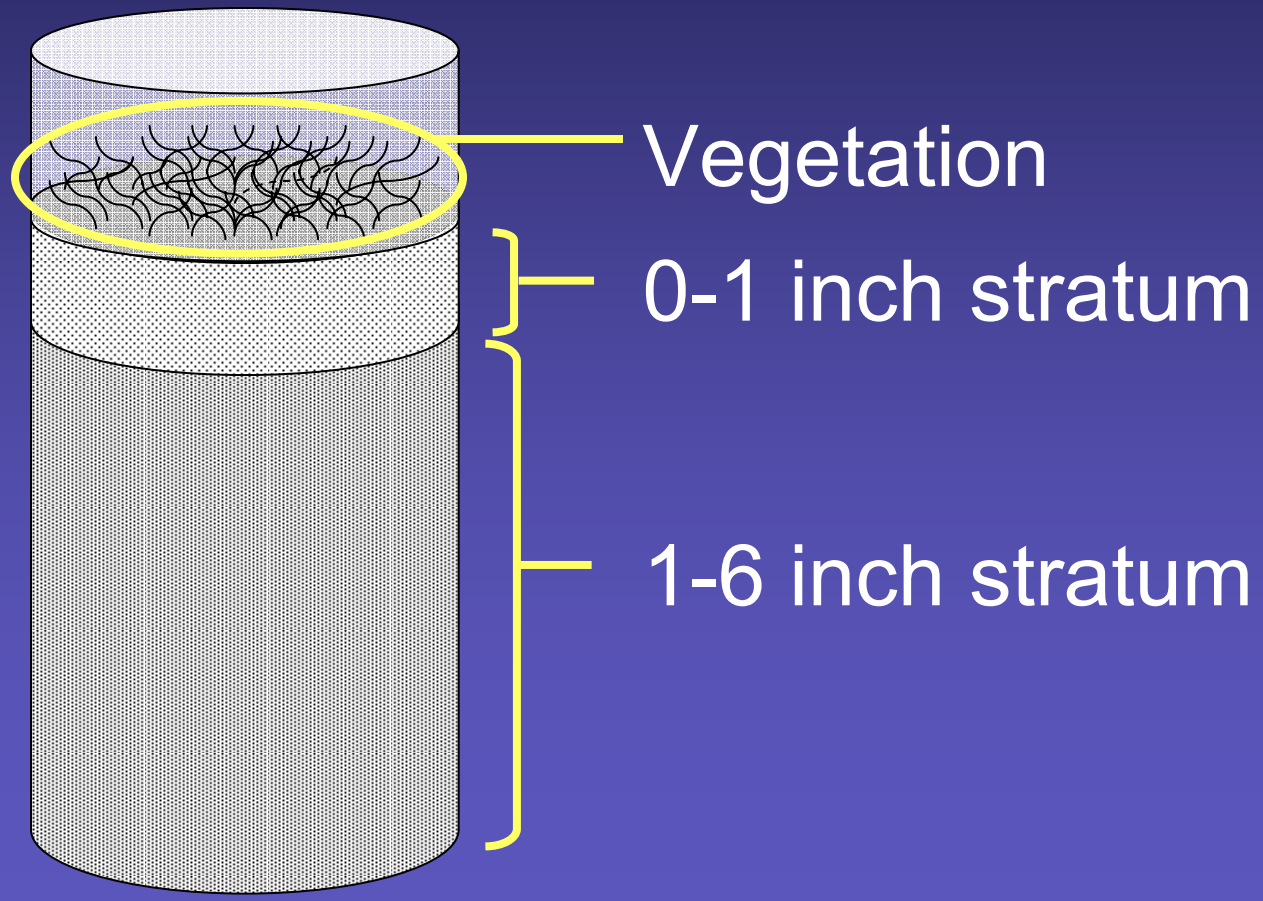


Flood Plain Zone

- 1 Sampling Station
- 3 Cores per Station
- 3 Strata per Core

Soil Collection and Compositing

- Cores were 6 inches deep and were separated into 3 strata (residence zone, flood plain zone).



Soil Collection

Statistical Analysis

- **Analyses will answer the principal question:**
  - *Are serum dioxin levels related to soil dioxin levels?*
- **These analyses will control for the effects of other factors (age, sex, BMI, fish consumption, meat consumption, residential proximity to Dow, etc.)**

Analysis of Blood Dioxin Predictors

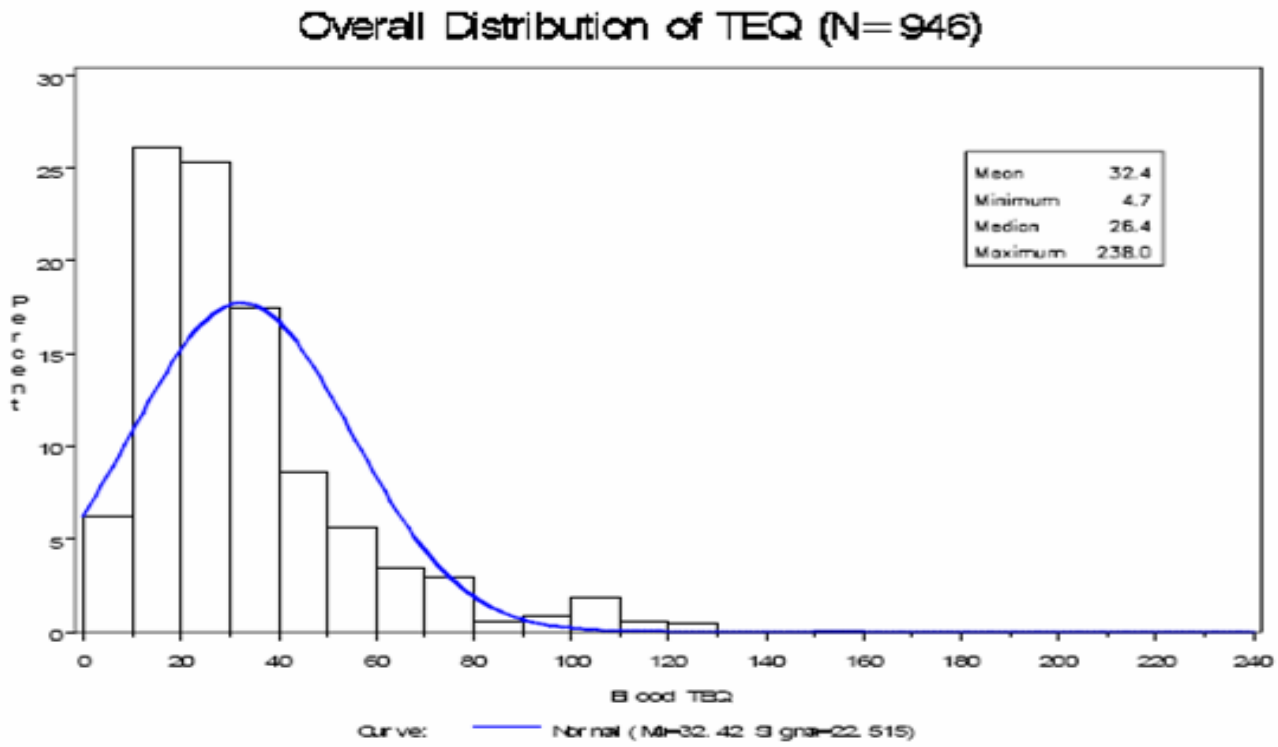
- Backwards selection from multiple imputed data sets
  - Identify potential explanatory factors for consideration in further models
- Linear regression models
  - $Log_{10}(blood) = \alpha + \beta_1(factor_1) + \ldots + \beta_n(factor_n) + error$

Results

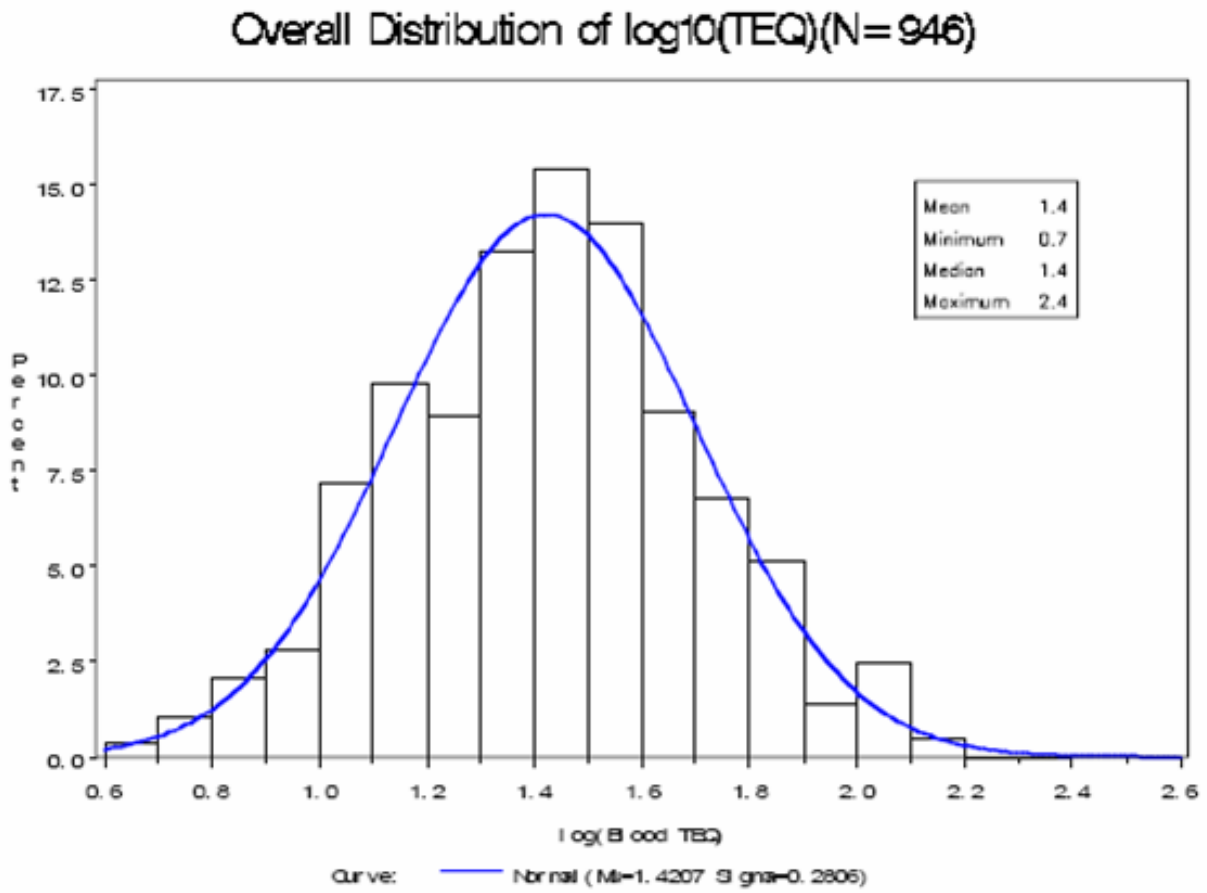
- Descriptive statistics of blood dioxin levels
- Analyses of the factors that predict blood dioxin levels
- Descriptive statistics of soil dioxin levels
- Descriptive statistics of household dust dioxin levels

Results: Distribution of serum TEQ

University of Michigan Dioxin Exposure Study
BLOOD DIOXIN CONCENTRATIONS: Weighted TEQ by region
Number of Participants: 946
Sample Type: blood (lipid adjusted)
Notes: TEQ is the TEF-weighted average of the 29 dioxin congeners
Survey Sampling Weight: wt_final_blood



Results: Distribution of serum TEQ



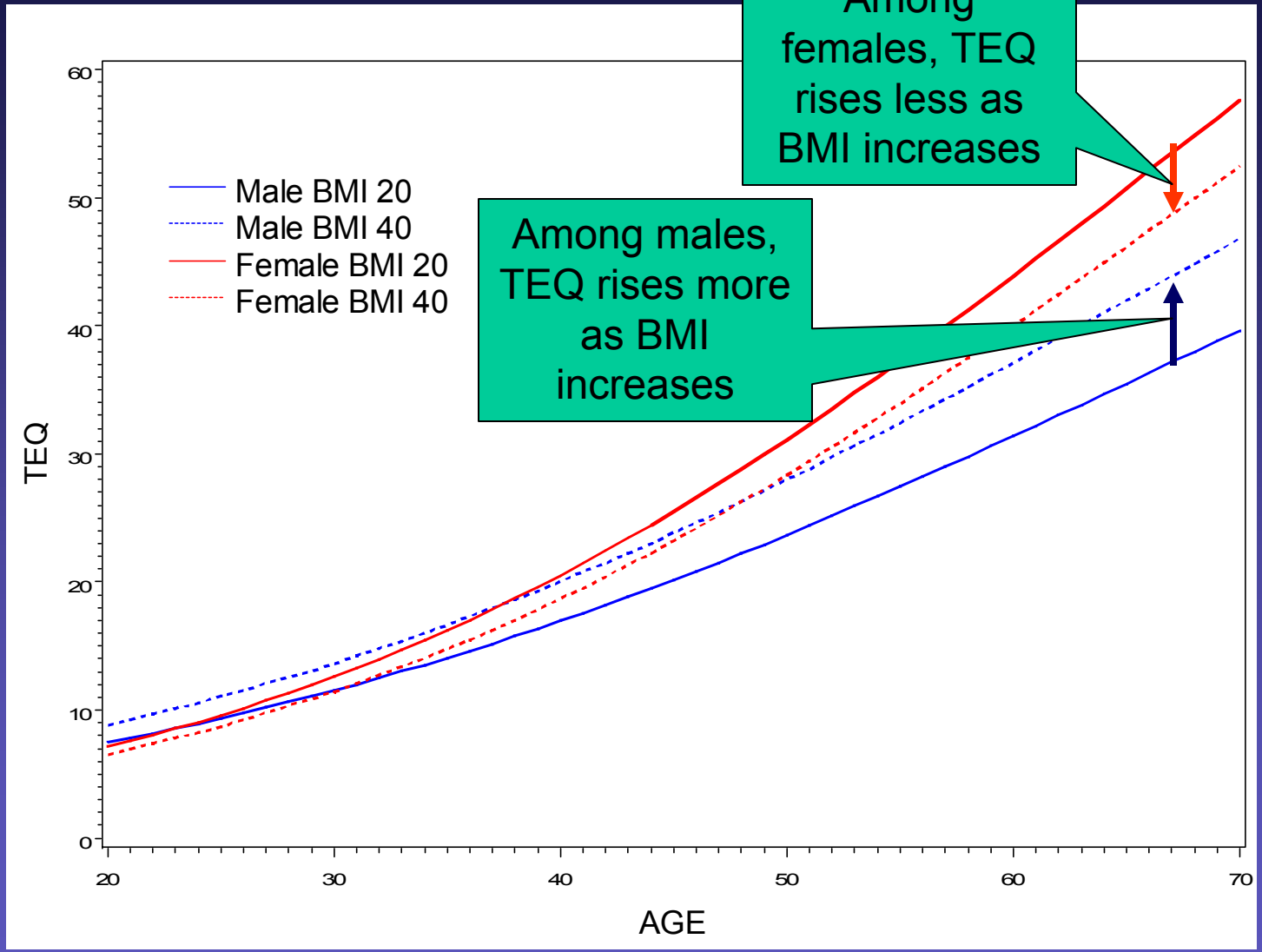
SAS program: SAB_blood_table_figure
Procedure: PROC 1002
Created by: QC & CL
Last Update: BH 6/9/2006

Results: Health/Demographic predictors of serum dioxin concentration

Parameter	TEQ		2378-TCDD		23478-PeCDF		12378-PeCDD		123678-HxCDD		PCB126		PCB118		PCB156	
Health/Demographic	est.	pvalue	est.	pvalue	est.	pvalue	est.	pvalue	est.	pvalue	est.	pvalue	est.	pvalue	est.	pvalue
age	0.0244	0.000	0.0061	0.244	0.0188	0.000	0.0138	0.000	0.0254	0.000	0.0130	0.005	0.0240	0.003	0.0730	0.000
age_sq	-1.1E-04	0.000	-3.0E-05	0.420	-8.0E-05	0.003	-4.0E-05	0.056	-1.3E-04	0.000	4.0E-05	0.364	-9.0E-05	0.386	-5.3E-04	0.000
BMI	0.0036	0.079	-0.0082	0.192	0.0064	0.015	0.0042	0.037	0.0067	0.001	0.0157	0.000	0.0064	0.007	-0.0102	0.000
Female	0.0229	0.740	-0.2808	0.002	0.0277	0.758	-0.0115	0.888	0.2070	0.020	0.3942	0.001	0.1642	0.019	0.0218	0.735
packyrs	-0.0020	0.000	-0.0031	0.002	-8.2E-04	0.070	-0.0012	0.020	-0.0011	0.013	-0.0077	0.000	-0.0063	0.002	-0.0015	0.424
months_firstBreastFed	-0.0074	0.000	-0.0116	0.000	-0.0098	0.000	-0.0063	0.000	-0.0097	0.000	-0.0054	0.026	-0.0104	0.017	-0.0089	0.031
BMI_loss	0.0087	0.005	.	.	0.0126	0.002	.	.	.	.	0.0202	0.000	.	.	.	.
Race: White	.	.	-0.1124	0.033	.	.	.	.	.	.	.	.	-0.2347	0.000	-0.1348	0.003
education3	.	.	-0.1455	0.000	.	.	.	.	.	.	.	.	.	.	.	.
months_restBreastFed	-0.0026	0.000	.	.	.	.	-0.0030	0.000	.	.	.	.	.	.	-0.0068	0.000
preg_noChildren	0.0144	0.007	.	.	.	.	0.0180	0.001	0.0197	0.003	.	.	.	.	0.0233	0.048
current_smoke	.	.	.	.	.	.	.	.	.	.	0.0697	0.025	.	.	.	.
BMI x age	.	.	2.8E-04	0.012	.	.	.	.	.	.	.	.	.	.	.	.
BMI x female	-0.0055	0.021	.	.	-0.0088	0.002	-0.0053	0.037	-0.0104	0.000	-0.0139	0.000	.	.	.	.
female x age	0.0031	0.000	0.0079	0.000	0.0050	0.000	0.0040	0.000	0.0020	0.014	.	.	.	.	.	.

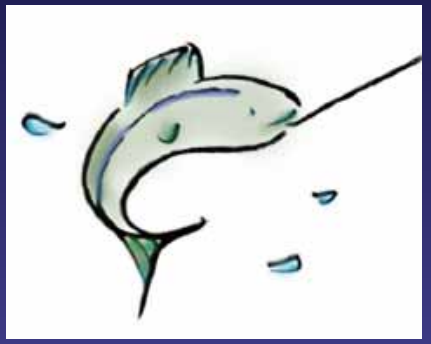
- Variables in blue are forced into models.
- Parameter estimates in pink are positive associations ($p<0.05$)
- Parameter estimates in green are negative associations. ($p<0.05$)
- Age and BMI are positively associated with most congeners.
- There are important interaction terms between age*BMI, age*sex, and BMI*sex.

Interaction between age, BMI and sex



Levels of Dioxins in People's Blood

People who ate fish from the Tittabawassee River, Saginaw River, and Saginaw Bay between 1980 and the present have higher levels of some dioxins in their blood than people who did not eat fish from these areas.



For every one year of consumption the increase is:

- 0.23 parts per trillion (0.9%) for the TEQ
- 0.03 parts per trillion (2%) for TCDD
- 0.05 parts per trillion (1.1%) for 1,2,3,7,8 PentaCDD
- 0.34 parts per trillion (0.9%) for 1,2,3,6,7,8 HexaCDD
- No apparent effect on the other specific dioxins

Living on property with soil containing

- 1,000 parts per trillion TEQ of dioxins was associated with higher levels in blood of 0.7 parts per trillion (2%) for the TEQ.

4% of the properties tested had a soil TEQ at or above 1,000 parts per trillion (among all soil samples on the property).

Living on property with soil containing

- 1,000 parts per trillion of PCB-118 was associated with higher levels in blood of 18 parts per trillion (less than 1%) for PCB-118.
- 40 parts per trillion of PCB-126 was associated with higher levels in blood of 0.9 parts per trillion (5%) for PCB-126.

Levels of Dioxins in People's Blood

- Gardening in soil containing 22 parts per trillion of TCDD was associated with higher levels in blood of 0.7 parts per trillion (53%) for TCDD. Fifty percent of the gardens tested in the Midland Plume had soil TCDD levels at or above 22 parts per trillion.
- Gardening in soil containing 1,000 parts per trillion of PCB 118 was associated with higher levels in blood of 18 parts per trillion (0.2 %) for PCB 118.

- Gardening in soil had no apparent effect for the TEQ or any other specific dioxins in blood.

Region accounts for about 1% of the variability in levels of TEQ and the 7 specific dioxins in people's blood.

People who live in the

- Floodplain have higher levels of TCDD, 2,3,4,7,8-PeCDF, and 1,2,3,7,8-PeCDD
- Near Floodplain have higher levels of TEQ, TCDD, 2,3,4,7,8-PeCDF, 1,2,3,7,8-PeCDD, and PCB-126
- Midland Plume have higher levels of TCDD
- Other Midland/Saginaw have higher levels of TCDD and 1,2,3,7,8-PeCDD.

than do people who live in Jackson/Calhoun.

Levels of Dioxins in People's Blood

In summary,

- The absolute increases in blood levels of dioxins due to living on contaminated soil or living in Midland/Saginaw were small.
- The percentage increases were in some instances appreciable.
- It is important to consider which factors accounted for the variation in blood levels of dioxins among people.

Results: Explained variation in serum dioxin concentration

Partial contribution to the adjusted R-square

Model	Overall	Health	Food	Work	Residence	Property use	Water activities	Region	Soil contamination	House dust contamination
TEQ	77.85	51.30	3.74	1.62		1.47	0.32	0.06	0.05	-0.01
TCDD	68.82	29.23	5.53	2.68	1.45	1.20	0.50	0.43	0.59	-0.02
PeCDF	71.15	42.94	9.02	1.85		1.53	1.03	0.22	-0.05	-0.03
PeCDD	72.83	43.09	4.01	2.79		1.30	0.71	0.96	0.04	0.10
HxCDD	67.32	54.28	5.76	1.21		0.91		-0.01	0.02	-0.04
PCB126	61.10	36.76	11.20	3.59		4.53	1.51	0.15	0.73	0.03
PCB118	30.75	19.25	1.63	0.14		2.07	0.06	-0.06	0.14	0.80
PCB156	41.64	31.14	1.63			0.74		-0.20	-0.12	0.06

Note: the number in each cell is the mean of 5 imputation data sets

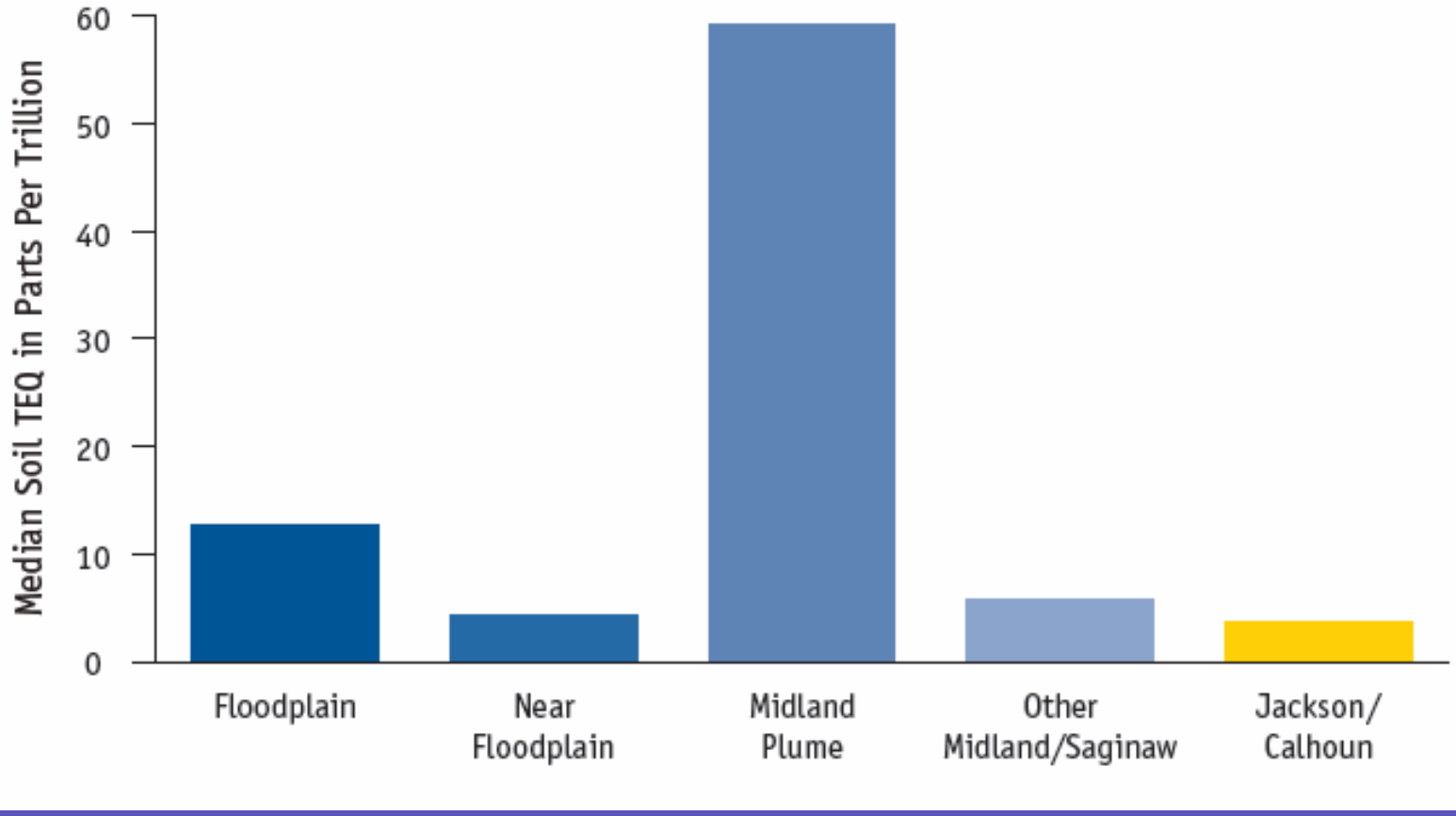
- The regression model explains 78% of the variation in serum TEQ.
- 51% of the variation in serum TEQ is explained by Health/Demographic variables: age, sex, BMI, smoking, breast feeding.
- Region, soil contamination, and house dust contamination explain only small fractions of the variation in TEQ or any specific congener.

Levels of Dioxins in People's Blood

- Age, sex, and BMI, accounted for ~50% of the variation in the blood levels of dioxins (TEQ) among people. These are the most important factors related to levels in people's blood.
- Eating fish and game (especially from the contaminated areas), doing water-related activities and certain occupations combined to account for 1-6% of the variation in blood levels of dioxins among people.
- Living on contaminated soil, living in Midland/Saginaw, and contaminated household dust accounted for about 0.2-1.0% of the variation in the blood levels of dioxins among people.

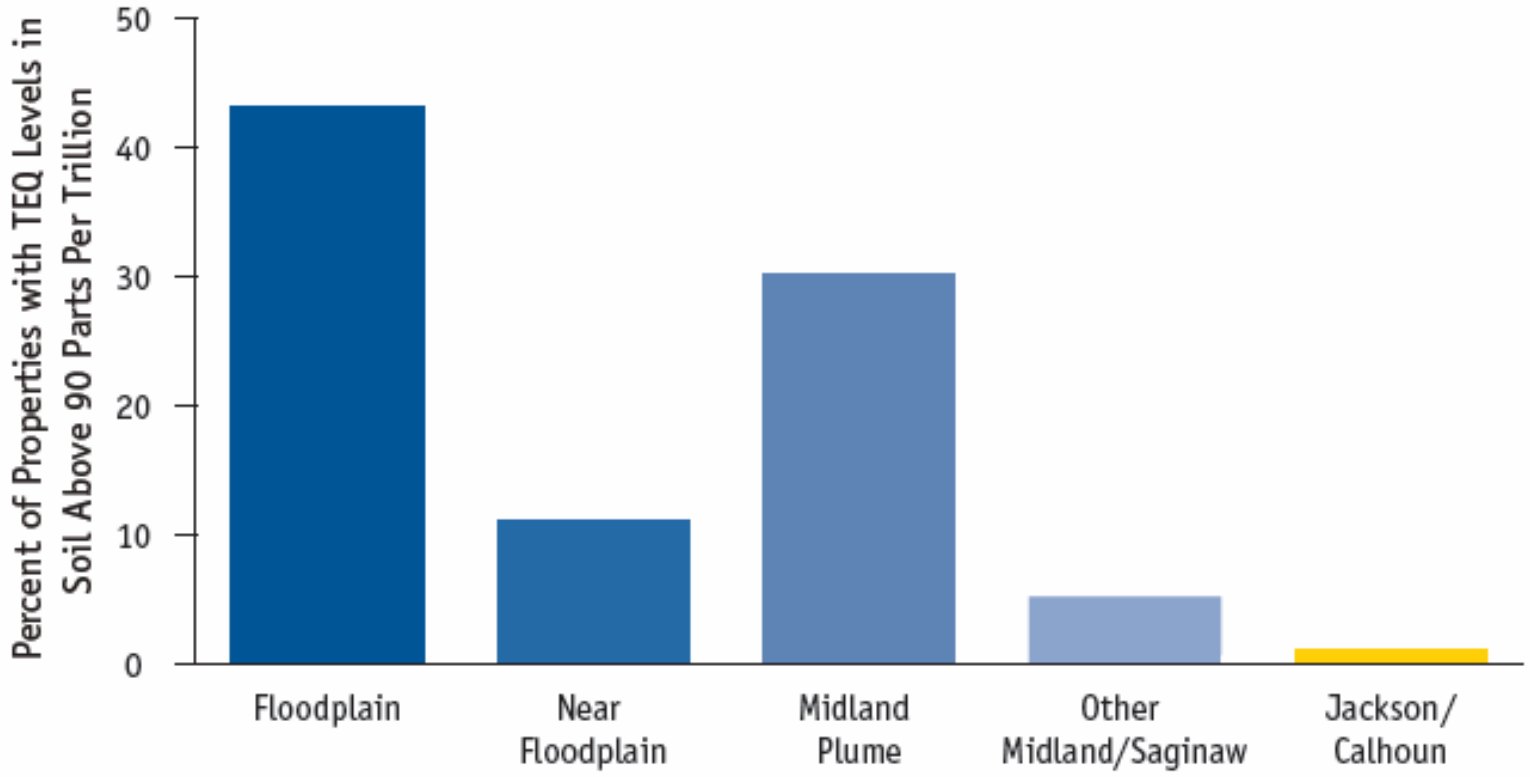
Levels of Dioxins in Soil

Figure 3. Soil taken from around houses in the Floodplain and the Midland Plume has higher median levels of dioxins than soil in Jackson/Calhoun.

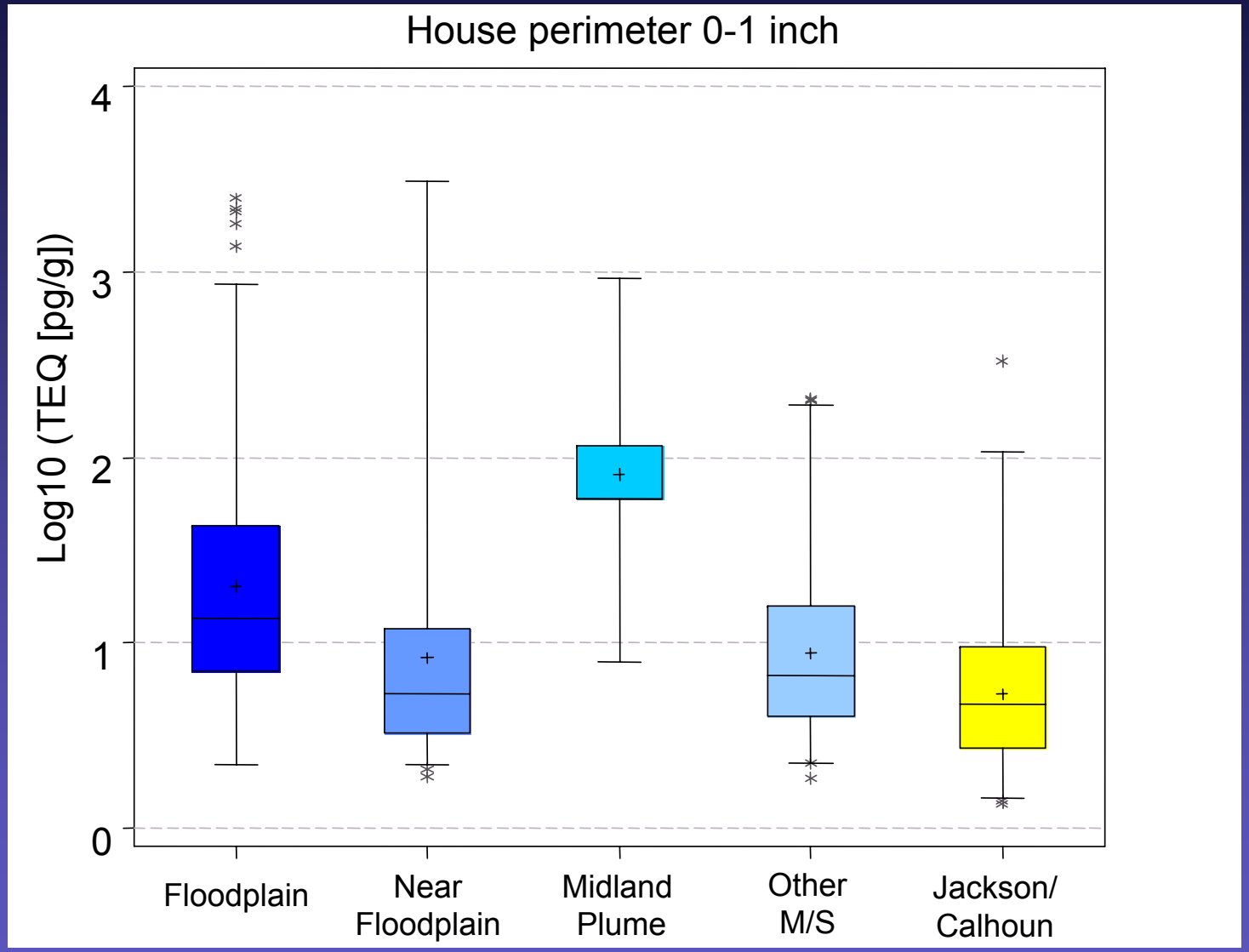


Levels of Dioxins in Soil

Figure 4. Properties in the Midland/Saginaw regions are more likely to have at least one soil sample above the TEQ level of 90 parts per trillion than properties in Jackson/Calhoun.



Comparison of Soil TEQ for Geographic Areas



Line in box = median

+ = geometric mean

Lower box margin = 25th %ile

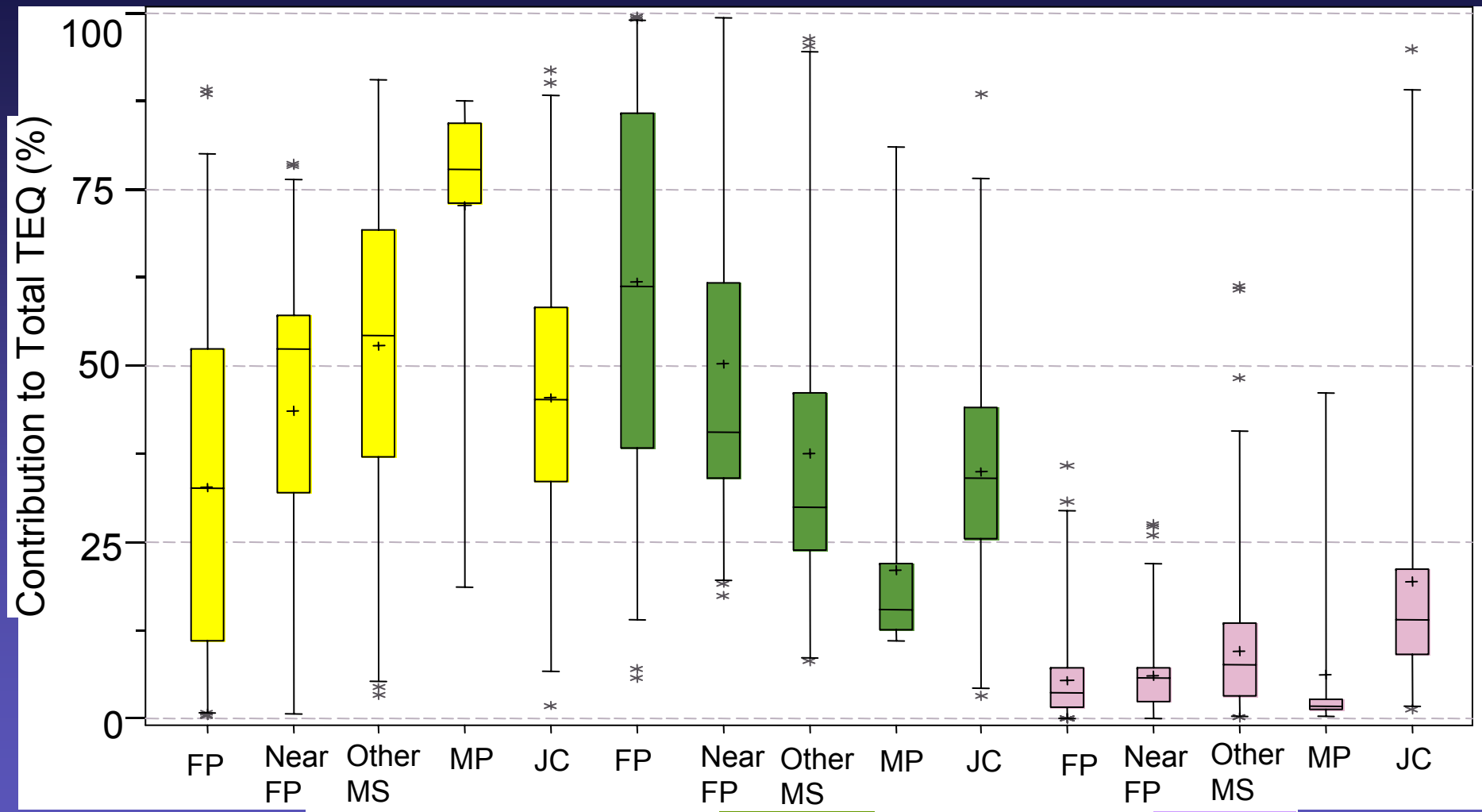
Upper box margin = 75th %ile

Lower whisker = 1st %ile

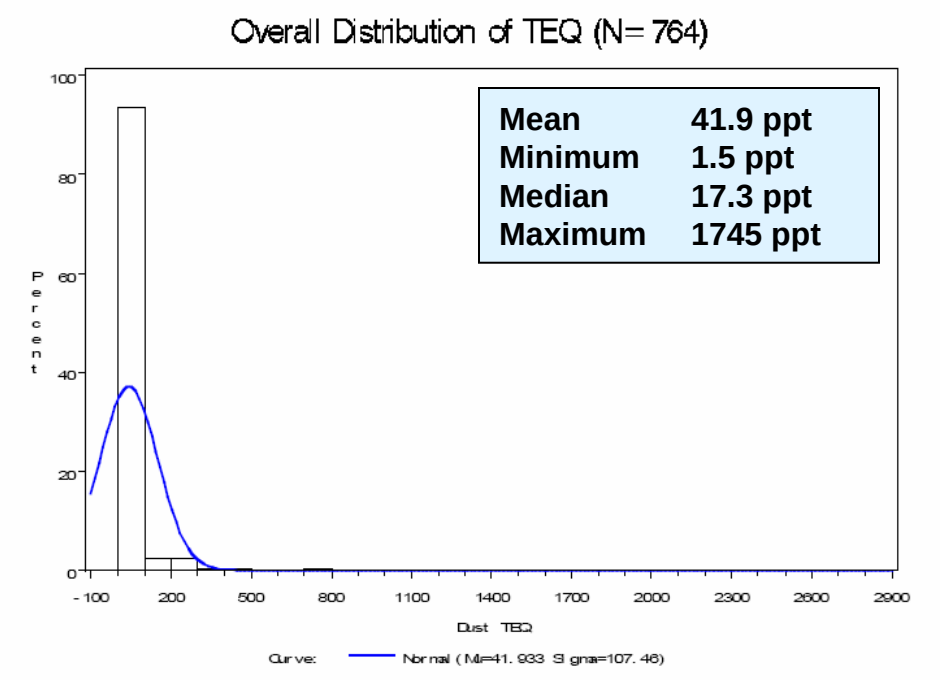
Upper whisker = 99th %ile

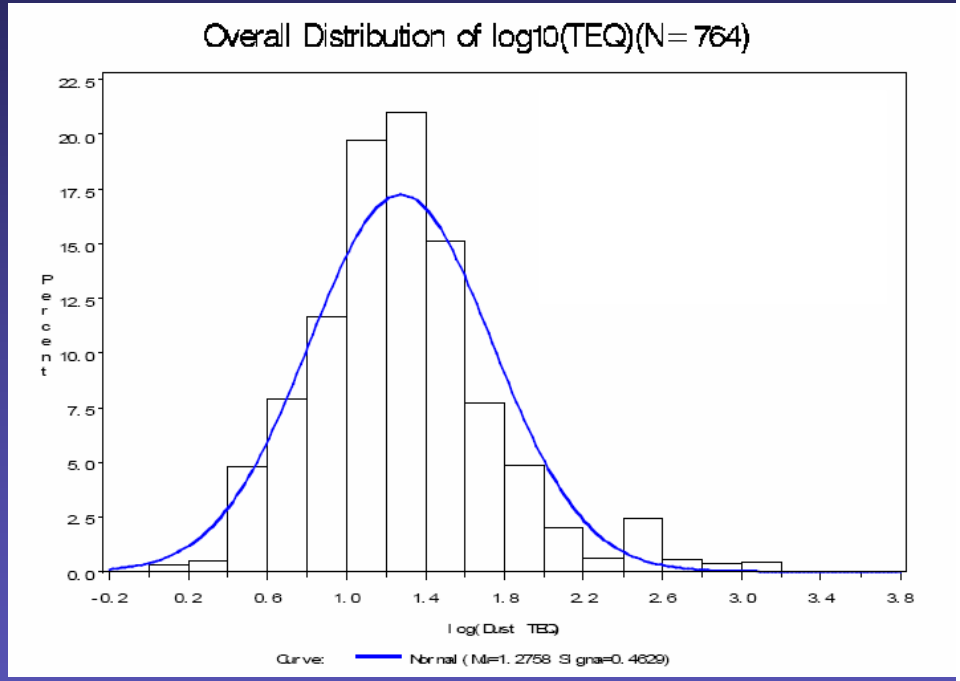
* = below 1st ile% or above 99th %ile

Congener Contributions to TEQ in Soil

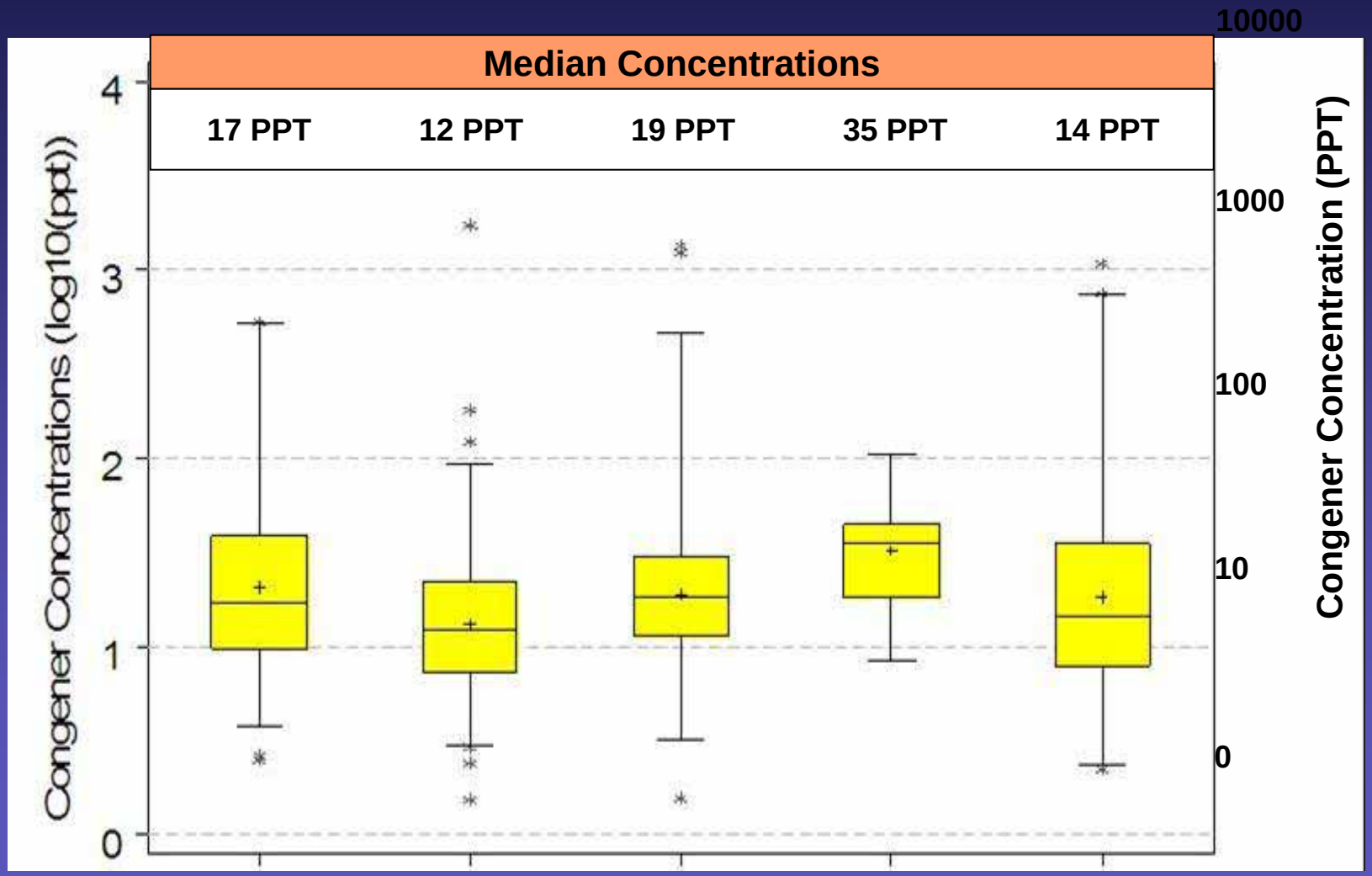


Distribution of Household Dust TEQ Concentration

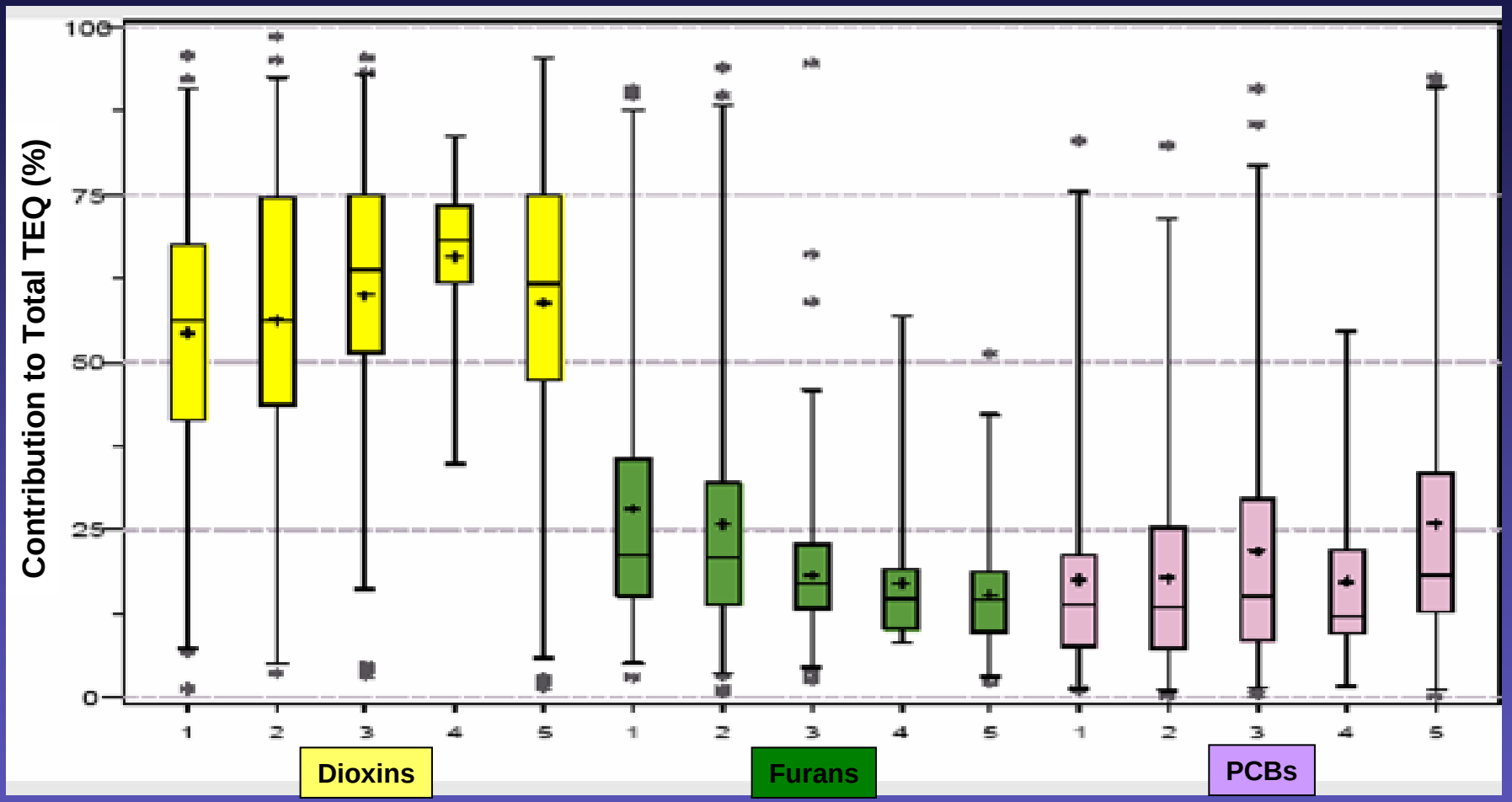




Household Dust TEQ Concentration by Region

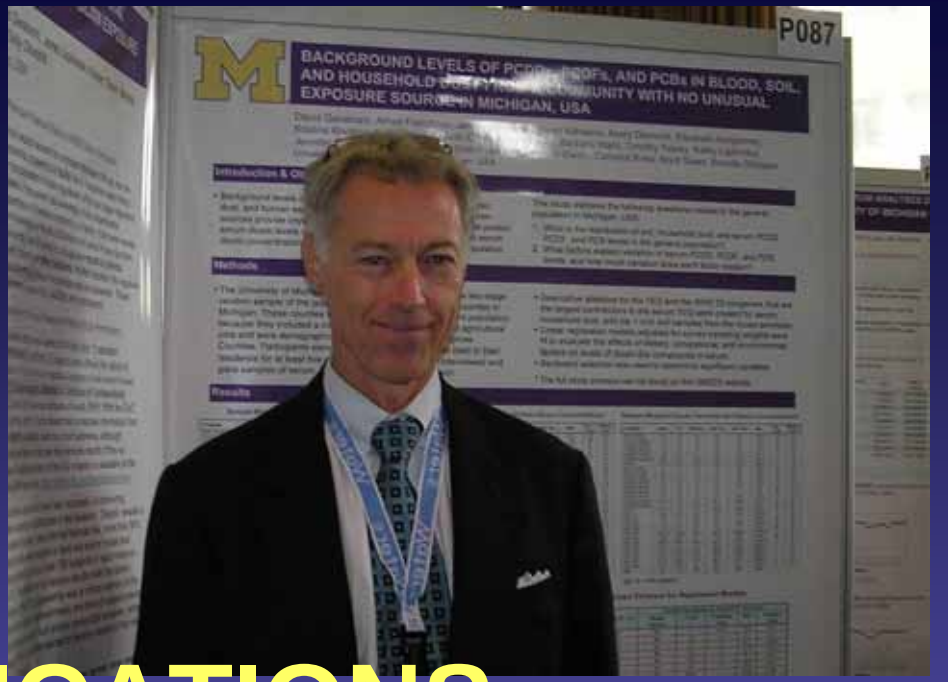


Contribution of PCDDs, PCDFs, and PCBs to the Total TEQ in Household Dust by Region



Region

1: Midland/Saginaw FP
2: Midland/Saginaw Near FP
3: Midland/Saginaw Out FP
4: Midland/Saginaw Plume
5: Jackson/Calhoun



COMMUNICATIONS

Study Oversight

- University of Michigan Internal Review Board (UM IRB)
- Serum QA/QC by NCEH laboratory at CDC
- Scientific Advisory Board (SAB)
- Community Advisory Panel (CAP)

Scientific Advisory Board (SAB)

- **The University of Michigan has selected a Scientific Advisory Board, with membership based on independence, qualifications in research relevant to the dioxin issues, and scientific stature**
  - ***Paolo Boffetta, MD.*** **Epidemiologist, IARC**
  - ***Linda Birnbaum, PhD.*** **Toxicologist, EPA**
  - ***David Kleinbaum, PhD.*** **Statistician, Emory University**
  - ***Ronald Hites, PhD.*** **Environmental Chemist, Indiana University**

Public Perceptions of the Study

- Independence and integrity are essential to the success of the study
  - *The University of Michigan alone has control over the conduct of the study.*
  - *The University has the right to publish the results of the study as it sees fit.*
  - *The University researchers will report on the progress, conduct, and results of the study to the SAB.*
  - *The SAB will review and comment on results prior to their release to the public.*
  - *The Dow Chemical Company has no involvement in the conduct of the study.*

Community Advisory Panel

- **The University of Michigan has formed Community Advisory Panels with membership based on**
  - *Independence*
  - *Representation of community groups*
  - *Stature and respect in the community*
- **The Community Advisory Panels**
  - *Provide feedback to the investigators regarding the concerns of the community*
  - *Inform the community about the conduct and progress of the study*

Communications Plan

- **Communicate with the population of Midland, Saginaw, Jackson, and Calhoun Counties for the purposes of**
  - *Soliciting input on their concerns regarding dioxin contamination in their environment*
  - *Designing a scientific study that will help to address these concerns*
  - *Providing reliable scientific evidence that is responsive to their concerns*
  - *Explaining what the scientific evidence means and how it addresses the concerns of the affected population*

Communications

We set up a toll free telephone number and an e-mail address for people to contact us directly with questions

1-888-689-0006 Toll Free

E-mail: mdes@umich.edu

or

umdioxin@umich.edu

And we have these magnets for everyone.

Communications

Our website www.umdioxin.org contains updates and information on the study conduct and progress

University of Michigan

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Welcome to the University of Michigan Dioxin Exposure Study

This site provides information about the University of Michigan Dioxin Exposure Study (UMDES). It also provides links to other sites, such as government agencies and news organizations, which may have information related to this study, or general information about dioxins and dioxin-like compounds.

Elevated levels of dioxins have been found in the soil of the Tittabawassee River flood plain and nearby areas.

In the fall of 2004, the University of Michigan began conducting a two-year study to find out whether the elevated levels of dioxins in the soil in the city of Midland, and in the Tittabawassee River flood plain between Midland and Saginaw, have also caused elevated levels of dioxins in residents' bodies. For comparison purposes the investigators will also perform similar measurements among residents in Jackson and Calhoun Counties.

What's New

August 15, 2006 - News Conference to present results of the UMDES.

more info

August 15, 2006 - Community meeting to present results of the UMDES.

more info

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Website: www.umdioxin.org

University of Michigan

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References

Agency for Toxic Substances and Disease Registry (ATSDR)

Dioxins

Tox Profile (10237 kb)
Public Health Statement
Tox FAQs

Furans

Tox Profile (4292 kb)
Public Health Statement
Tox FAQs

PCBs

Tox Profile (11763 kb)
Public Health Statement
Tox FAQs

US Environmental Protection Agency (EPA)

Dioxin and Related Compounds

World Health Organization (WHO)

Dioxins and Their Effects on Human Health

Other References

Age Specific Dioxin TEQ Reference Range - Patterson D.G., Patterso
Caudill S., Grassman J., Needham L., Henderson A. Age Specific Dio
Compounds. 2004;66:2878-2883.

Michigan Department of Community Health - Human Blood Testing for

Guide to Safe Fish and Wild Game Consumption in the Saginaw Bay

A Family Guide to Eating Fish

Health Risks from Dioxin and Related Compounds: Evaluation of the E

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Protocol

UMDES Study Protocol

Study Protocol

Appendices

Appendix 1 - Tri-County Map: Bay, Midland and Saginaw Counties, MI
Appendix 2 - 2000 U.S. Census
Appendix 3 - 2003 Michigan Family Fish Consumption Guide
Appendix 4 - Questionnaire
- Event History Calendar
- Respondent Booklet

Appendix 5 - Non-Response Study
Appendix 6 - Blood Collection and Analysis
Appendix 7 - Household Dust Sampling Protocol
Appendix 8 - Soil Sampling Protocol
Appendix 9 - Quality Assurance Project Plan (QAPP)
Appendix 10 - EPA Analytical Methods
Appendix 11 - Letters and Consent Forms
Appendix 12 - Incinerator Plume Dispersion Modeling Protocol
Appendix 13 - Certificate of Confidentiality
Appendix 14 - Biosketches of Investigators

Study Comments and Responses

Comments from Barbara Lucas - January 29, 2006
The University of Michigan Dioxin Exposure Study Team Responses

Ecology Center and Lone Tree Council Comments - March 11, 2005
MDCH and ATSDR Comments - March 12, 2005

Communications

Our website www.umdioxin.org contains updates and information on the study conduct and progress

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Presentations

UMDES Results Presentation from the Community Advisory Panel Meetings: August 15-16, 2006
Powerpoint Slides (342 KB, PDF)

Dioxin 2006 Conference Presentations

The University of Michigan Dioxin Exposure Study: Project Overview (266 KB, PDF)

Survey Methodology in an Environmental Exposure Study: Methods, Missing Data, and Inference (363 KB, PDF)

Prevalence of Exposure Routes in the University of Michigan Dioxin Exposure Study: Food Consumption, Recreational and Household Activities, Occupations and Demographics (142 KB, PDF)

Measurements of Soil Concentrations of PCDDs/PCDFs/PCBs From a Community in Michigan, USA (281 KB, PDF)

Measurements of Household Dust Concentrations of PCDDs, PCDFs, AND PCBs From a Community in Michigan, USA (378 KB, PDF)

Measurements of Serum Concentrations of PCDDs, PCDFs, AND PCBs From a Community in Michigan, USA (345 KB, PDF)

Environmental Factors that Explain Variation in Serum Dioxin Concentration in a Community in Michigan, USA (709 KB, PDF)

Analysis of Patterns in PCDD, PCDF, and PCB Soil Concentrations From a Community in Michigan, USA

Dioxin 2006 Conference Posters

Analysis of Vegetation Concentrations of PCDD/F/PCBs from a Community in Michigan, USA (95 KB, PDF)

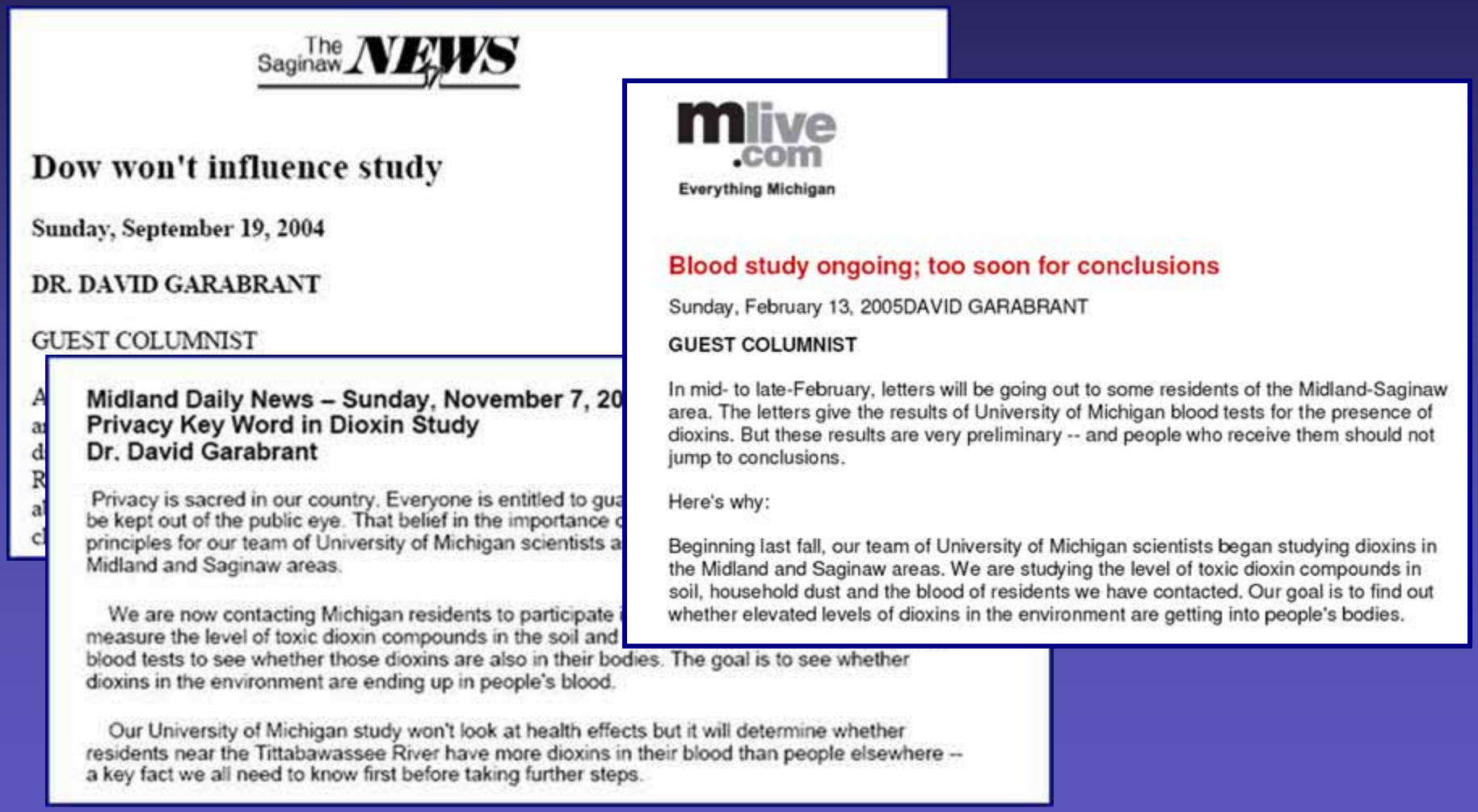
Principal Components Analysis of Serum PCDDs, PCDFs, and PCBs from a Community in Michigan, USA (69 KB, PDF)

Principal Components Analysis of Household Dust Concentrations of PCDDs, PCDFs, and PCBs from a Community in Michigan, USA (519 KB, PDF)

Geostatistical Analysis of PCDD and PCDF Deposition from Incineration Using Stack Emissions and Soil Data (294 KB, PDF)

Communications

We write newspaper Op-Ed pieces to keep the public informed of study progress



The Saginaw NEWS

Dow won't influence study

Sunday, September 19, 2004

DR. DAVID GARABRANT

GUEST COLUMNIST

Midland Daily News – Sunday, November 7, 20
Privacy Key Word in Dioxin Study
Dr. David Garabrant

Privacy is sacred in our country. Everyone is entitled to gua
be kept out of the public eye. That belief in the importance o
principles for our team of University of Michigan scientists a
Midland and Saginaw areas.

We are now contacting Michigan residents to participate i
measure the level of toxic dioxin compounds in the soil and
blood tests to see whether those dioxins are also in their bodies. The goal is to see whether
dioxins in the environment are ending up in people's blood.

Our University of Michigan study won't look at health effects but it will determine whether residents near the Tittabawassee River have more dioxins in their blood than people elsewhere -- a key fact we all need to know first before taking further steps.

mlive.com
Everything Michigan

Blood study ongoing; too soon for conclusions

Sunday, February 13, 2005DAVID GARABRANT

GUEST COLUMNIST

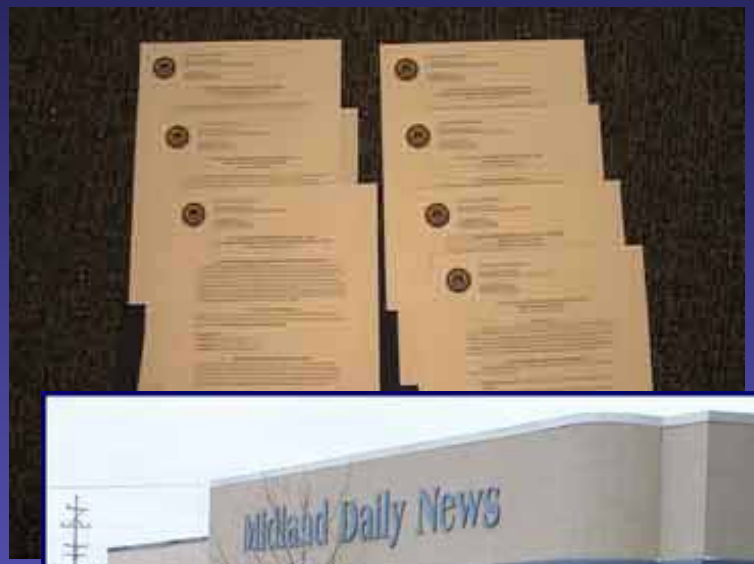
In mid- to late-February, letters will be going out to some residents of the Midland-Saginaw area. The letters give the results of University of Michigan blood tests for the presence of dioxins. But these results are very preliminary -- and people who receive them should not jump to conclusions.

Here's why:

Beginning last fall, our team of University of Michigan scientists began studying dioxins in the Midland and Saginaw areas. We are studying the level of toxic dioxin compounds in soil, household dust and the blood of residents we have contacted. Our goal is to find out whether elevated levels of dioxins in the environment are getting into people's bodies.

Communications

We send out media kits and meet with the media to keep the reporters informed of study progress



Communications

We send press releases and hold press briefings to keep the media informed of study progress

FOR IMMEDIATE RELEASE
June 8, 2004
For more information, please contact:
David Garabrant, MD, MPH at (734) 936-0753

UNIVERSITY OF MICHIGAN
PREPARES DIOXIN STUDY

FOR IMMEDIATE RELEASE
February 24, 2005
Contact: Dr. David Garabrant
Telephone: (734) 936 0753
Email: dhg@umich.edu

U-M DIOXIN RESEARCHERS TO MEET WITH COMMUNITY REPRESENTATIVES

FOR IMMEDIATE RELEASE
August 19, 2004
For more information, please contact:
David Garabrant, MD, MPH at (734) 936-0753

UNIVERSITY OF MICHIGAN
DIOXIN STUDY COMMUNITY ADVISORY PANEL TO MEET

Communications

We film public TV shows to keep the community informed of study progress

We do interviews with local radio stations (WSGW, WHHN-FM, WIOG-FM, Z-93, WHEELZ 104.1 and 101)

Communications

We meet with State officials (MDCH, MDEQ, Senators, Representatives, and Governor's Advisors) to keep them informed of study progress

Reporting of Results

- Individual participants were given the results of their tests (if they wished to receive them).
- Overall results were presented at public meetings on August 15-16, 2006 and are posted to our website.
- Additional technical presentations will be made throughout fall 2006.
- The investigators will meet with elected officials, government agencies, Dow, community members, and the press to discuss results, respond to requests for additional data analyses, and answer questions.

Fair feasting: Campers prefer everyday foods ■ (see 4)

Midland Daily News

Dioxin in Midlanders' blood

Driver sentenced for Jefferson Avenue crash

END