

Tittabawasee River Residential Floodplain Sampling

Summary of Results and Cleanup Plans for
Exposure Unit (EU) 001, and
Status Update for EU 002 Through EU006

Sampling Objectives

- Determine level of dioxin/furan TEQ contamination in residential soil
- “Trigger” was 1 sample point from DOW sampling (5,900 ppt TEQ)
- Characterize TEQ contamination throughout neighborhood soils – dense sampling scheme
- Identify if contamination exists inside homes
- Compare indoor contamination to soil contamination
- Evaluate potential exposure risk to residents

EU001 – Initial sample location - DOW



Legend

Historical TEQ Results (ppt)

- < 90
- 90 - 1,000
- 1,000 - 10,000
- >10,000

EU001 Boundary

Property Boundaries

0 125 Feet

N

NOTES:

Prepared For:
U.S. EPA REGION V
Contract: EP-S6-0604
TDD: S05-0012-0802-011
DCN: 390-

WESTON Prepared By:
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EU001 Historical TEQ Results
Residential Floodplain Sampling
Saginaw, Michigan

EU001 – Sampling Results



Legend

TEQ Results (ppt)

- < 90
- 90 - 1,000
- 1,000 - 10,000
- > 10,000

- EU001 Boundary
- Property Boundaries

N

0 125 Feet

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EU001 TEQ Results
Residential Floodplain Sampling
Saginaw, Michigan

EU001 – Sampling Results

EU001 TEQ Summary – Surface and Subsurface Soil

Property ID	MIN TEQ (ppt)	MAX TEQ (ppt)	AVG TEQ (ppt)
EU001 Property A	510	990	827
EU001 Property B	1400	6,200	3,430
EU001 Property C	120	6,800	2,413
EU001 Property C	53	200	127
EU001 Property D	8.3	2,600	937
EU001 Property E	11	7,600	1,675
EU001 Property F	1.3	500	159
EU001 Property F	1.1	1.4	1.3
EU001 Property G	120	6,900	3,009
EU001 Property H	1,100	10,000	4,447
EU001 Property I	184	15,000	3,118
EU001 Property J	23	9,300	1,975
EU001 Property K	270	4,000	1,361
EU001 Property M	220	5,000	3,254
EU001 Property O	150	6,000	3,346
EU001 Property P	97	23,000	2,589
EU001 Property Q	89	7,700	2,049
EU001 Property R	6.1	5,000	1,038
EU001 Property S	2.6	660	228
EU001 Property T	670	1,700	1,343
EU001 Property U	40	11,891	2,524
EU001 Property V	10	3,800	585
EU001 Property W	8.5	3,100	668
EU001 Property X	680	33,000	5,317
OVERALL EU001	1.1	33,000	1,934

EU001 – Sampling Results

EU001 TEQ Summary – Dust

Property ID	MIN TEQ (pg/g)	MAX TEQ (pg/g)	AVG TEQ (pg/g)
EU001	55.0	3,100	456

EU001 TEQ Summary – Wipes

Property ID	MIN TEQ (pg/wipe)	MAX TEQ (pg/wipe)	AVG TEQ (pg/wipe)
EU001	6.1	990	309

Results show the indoor dioxin came from the residential soils/dirt road

Removal Action at EU001

July 15, 2008 AOC

- Perform pre-removal soil sampling and
- Residential Area
 - Excavate minimum 24" of soil OR to native clay
 - Aggressively clean all home interiors
- West Transition Area
 - Excavate minimum 12" of soil OR to native clay
- North and East Transition Areas
 - Excavate to 12"
- Riverside Boulevard and Driveways
 - Excavate to 6"

Restoration at EU001

- Backfill all areas with non-contaminated soil, including 6" topsoil
- Restore all structures and re-vegetate
- Pave roadway and driveways

Tittabawasee River – Exposure Unit Overview

Draft, FOIA Exempt



Legend

- EU001 Property Boundaries
- EU002 Property Boundaries
- EU004 Property Boundaries
- EU005 Property Boundaries
- EU006 Property Boundaries



0 7,000
Feet

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Figure 1
EU Boundaries
Residential Floodplain Sampling
Saginaw, Michigan

Sampling Approach

- Determine level of TEQ contamination in residential soil
- Characterize TEQ contamination on **representative** properties for exposure unit
EPA and DEQ/DCH currently evaluating results
- Identify level of contamination inside homes
- Property profiles are different than EU001, with houses out of constant flood zones

Data and Results Summary

- Areas of lower geographic elevation have higher contamination (more prone to repeat flooding)
- Mix of maintained and unmaintained areas in the more frequently flooded zones
- Subject areas within these EUs show lower flood frequency suggests lower level of contamination
- Indoor migration of contaminants has been demonstrated

Summary

- Data suggests that flooding heavily influences the amount of contamination found
- Contamination in the soils appears to support migration of contamination indoors
- EU001 is unique in that the entire property floods
- The other EUs are more typical in that the houses are above the floodway/floodplain

For a copy of this presentation, go to:

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