

## Blood, Dust and Soil Analyses: Notes and Abbreviations

This section includes all laboratory blood, dust, and soil data collected as part of the UMDES. Chemical analysis was performed by Alta Laboratories. Data were collected and processed between October, 2004 and May, 2006.

### Abbreviations used in tables and figures:

**TEQ** = Toxic equivalency, relative to TCDD, based on the World Health Organization (WHO) 29 congeners and the toxic equivalency factors (TEFs) from the 1997 WHO expert meeting.

**LOD** = Limit of Detection

**M/S** = Midland and Saginaw Counties

**FP** = Floodplain

**M/S FP** = This population is defined by residing on properties that are in the FEMA 100-year floodplain (wholly or partially) OR by answering 'YES' to the question "To your knowledge, has any portion of your property ever been flooded by the Tittabawassee River?", or both.

**M/S Near FP** = This population is defined by living in residences that are within Census Blocks that overlap the FEMA 100-year floodplain, but for which the participant's property is not in the FEMA 100-year flood plain AND for which the participant did not answer 'YES' to the question "To your knowledge, has any portion of your property ever been flooded by the Tittabawassee River?"

**M/S Out FP** = This population is defined by living in residences in Midland/Saginaw counties on properties that are not included in the FP, Near FP, or in the modeled plume downwind of the Dow plant in Midland.

**M/S Plume** = This population is defined by living in residences in Midland/Saginaw near the plume from the former Dow incinerator. Areas included were those with modeled ground concentrations of 75 ppt dioxin TEQ or higher. To form mutually exclusive groups, only plume samples in M/S Out FP are considered as plume samples in tables and figures presented here. Two plume samples in Near FP were counted as Near FP.

**Jackson/Calhoun** = This population is defined by living in residences in Jackson and Calhoun Counties.

**HP** = House Perimeter samples

**SCZ** = Soil Contact Zone samples

**FP** = Floodplain samples

**Box Plots:** For each boxplot, the horizontal line across the box is the 50<sup>th</sup> percentile (median), the lower and upper margins of the box are the 25<sup>th</sup> percentile and 75<sup>th</sup> percentile, respectively; the upper ticked line ("whisker") extends to the 99<sup>th</sup> percentile; the lower ticked line extends to the 1<sup>st</sup> percentile; the stars show values below the 1<sup>st</sup> percentile or above the 99<sup>th</sup> percentile.

### Ways of handling values below the LOD:

- Lower bound: Each value below LOD is replaced by zero.
- Upper bound: Each value below LOD is replaced by the LOD.
- Square root method (sqr2): Each value below LOD is replaced by the  $LOD / \sqrt{2}$ .
- The lower and upper bound values were provided by Alta; the square root method values were calculated by UM.

### Statistical tests for pair-wise comparisons between regions:

Three different tests were used. The first tests for an overall shift in the distribution. The next two test for differences in the upper tails of the distribution. The tests compared:

- the mean of log<sub>10</sub>-transformed TEQ or ppt congener concentrations,
- the proportion above the Jackson/Calhoun 75<sup>th</sup> percentile, and
- the proportion above the Jackson/Calhoun 95<sup>th</sup> percentile

For blood, each comparison was made both unadjusted and adjusted for age, age squared, and BMI.