



Finally, the raster calculator was used to integrate all three raster files and ascertain the impact arsenic and lead has on young children in the region (F4).

To perform this analysis, demographic data and TIGER/Line block shapefiles were prepared and downloaded from the Census. CSV. files on arsenic and lead samples were manipulated and processed (using the append tool and export feature) into points feature classes. The arsenic and lead samples were aggregated for each location, using the dissolve tool.

Pierce County Toxic Remediation

A series of spatial analyses were conducted to determine a) the spatial distribution of lead, arsenic, and young children (ages ten and under) in Pierce County, and b) the relationship between these factors. Throughout a significant portion of Tacoma's history, the Asarco Tacoma Smelter site smelted and refined cooper and lead in the region, resulting in the release of pollutants into the soil and air. In 1983, the EPA listed the Asarco Smelter site on the National Priorities List. The Washington Department of Ecology and Tacoma-Pierce County Health Department formed a partnership with the EPA to remediate soils contaminated with lead and arsenic near the Asarco Smelter.

Demographics data was manipulated in Excel in a way that can be added, joined to Pierce block shapefile, then manipulated to determine the area per block in square miles and the amount of kids per square mile. The IDW tool was used to create a raster file (F3) that shows the spatial distribution of children in Pierce County, then reclassified based on standard deviation again.

The Kriging tool was used to create raster files for arsenic (F1) and lead (F2) distribution in Pierce County, then reclassified based on standard deviation.

